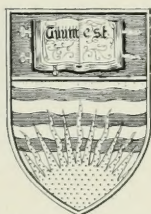


A SCIENTIFIC APPROACH TO  
INVESTMENT  
MANAGEMENT

DWIGHT C. ROSE

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A SCIENTIFIC APPROACH TO  
INVESTMENT MANAGEMENT



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A SCIENTIFIC APPROACH TO  
**INVESTMENT  
MANAGEMENT**

BY

DWIGHT C. ROSE

OF

SCUDDER, STEVENS & CLARK  
INVESTMENT COUNSEL



HARPER & BROTHERS PUBLISHERS  
NEW YORK AND LONDON

A SCIENTIFIC APPROACH TO  
INVESTMENT MANAGEMENT

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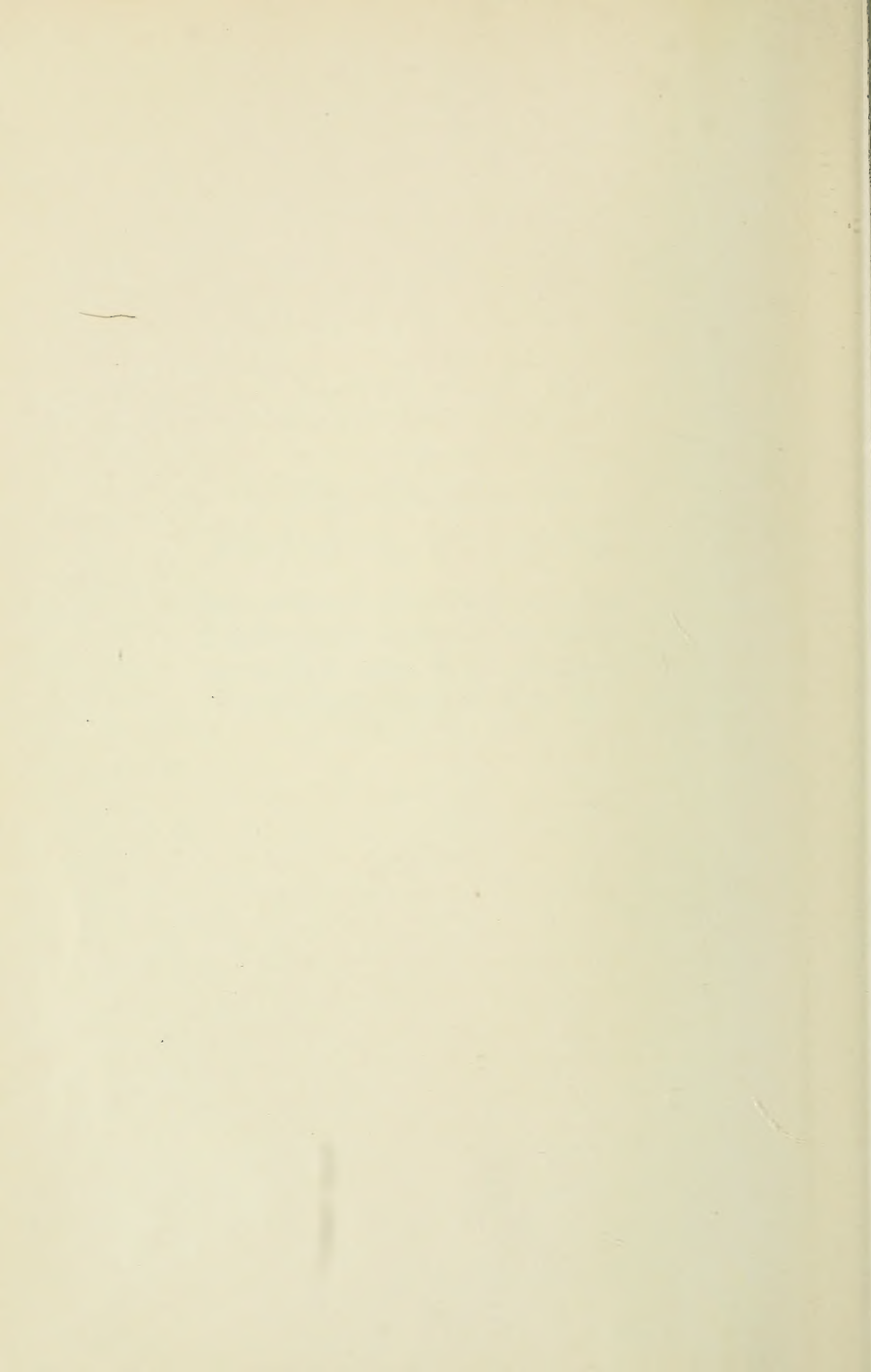


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TO  
THE INCREASING ARMY OF  
AMERICAN INVESTORS

upon the intelligent direction and  
expansion of whose accumulated  
surpluses our growing civilization  
is fundamentally dependent



## P R E F A C E

ANY scientific approach to the solution of investment problems must make reasonable allowance for the influence of personal prejudice. The human mind, even at its best, is not an accurate recording mechanism; and in the field of investment there are perhaps more prejudices—more preconceived notions with less foundation in fact—than in any other line of endeavor to which man has addressed his intellectual faculties. May the author be pardoned, therefore, if in the Prologue of this book, through the artifice of a homely conversational episode, he attempts, first, to emphasize the conflicting prejudices which tend to confuse present-day investment thought and practice, and, second, to sketch the general direction of what he believes to be the logical path leading from this modern labyrinth to future success?

It is the purpose of the first four chapters to bring into clear relief the fundamental elements of the investor's problem and to prepare the reader for the heart of the inquiry as discussed in Chapters V to XII. In these later chapters we have attempted scientifically to measure actual investment experience in this country since 1900. Proceeding upon this basis, we have analyzed this experience into its component parts in order to permit a study of the

inherent characteristics of various types of securities, and also to determine the causes responsible for the varying degrees of accomplishment from them. From this analysis we have sought to deduce some of the fundamental principles upon which to develop a conservative and successful investment program, and, finally, to demonstrate the effectiveness of these principles when applied in practice under actual working conditions.

To the criticism that these studies are incomplete and therefore inconclusive, the author's reply is that the forces affecting conservative and profitable investment are in a continuous state of flux, and that therefore we can never have a complete and permanent solution to the problem. While admittedly incomplete, the studies presented in this book are those which appeared most essential, from a practical standpoint, to supplement the present inadequate knowledge of investment facts. They are the result of a sincere attempt to disclose and clarify some of the subtle and confused elements in recent investment history—elements almost completely hidden from the average investor immersed in his own affairs. But by the experienced investor, or by the conscientious financial adviser who seeks actual accomplishment and profit instead of relying with complacency upon his own preconceived notions and prejudices, it is believed that these elements will be recognized as bases for sound judgment in any investment management program concerned with the intelligent conservation of surplus wealth.



Grateful acknowledgment is made to my associates in the firm of Scudder, Stevens & Clark, Investment Counsel of New York and Boston, for invaluable assistance in the preparation of this volume. All the statistical studies supporting the conclusions reached were worked out in the offices of Scudder, Stevens & Clark; and the practical application of the findings of these and other studies to the estates of clients of this firm over the last nine years has enabled the presentation of our conclusions from a distinctly practical viewpoint. Experience has frequently demonstrated that there is a material difference between a *logical theory* of investment and a *practical plan* which can be utilized under "working conditions."

Among many others to whom the author is indebted for helpful suggestions he wishes especially to express his thanks to Mr. Edgar Lawrence Smith, whose admirable book, *Common Stocks as Long Term Investments*, has so effectively stimulated a wider and more enlightened application of the fundamentals of sound investing.

DWIGHT C. ROSE

111 Broadway, New York  
October 1, 1928



## AUTHOR'S NOTE

*The Prologue and the four subsequent chapters of this book have been included primarily to provide the lay investor with a sound, yet uninvolved, approach to the more technical studies which follow, and also to arouse sufficient curiosity in some of the general aspects of investment so that he may feel disposed to follow the reasoning in the later chapters with something more than superficial attention. Although the experienced investment student is conversant with the principles outlined in these earlier chapters, it is nevertheless recommended that he glance through them in order that he may be fully aware of the general premises upon which the author has based his case.*





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A SCIENTIFIC APPROACH TO  
INVESTMENT MANAGEMENT





*A Scientific Approach to*  
*Investment Management*

PROLOGUE TO THE INVESTOR'S PROBLEM

JOHN DOUGLAS, a prominent investment banker and a figure of note in the financial world, lounged comfortably in his deck chair beside his nephew on the second day out from New York, and watched the sun sink below the rim of the distant horizon. His mind, still strong and active at seventy-one, played shrewdly over the events of the past few months in which, with the able assistance of the young man by his side, he had successfully negotiated a merger of prime importance in the business world.

At the present moment, what chiefly absorbed Douglas, a keen, broad-visioned and yet deeply practical banker of the older, pioneer group of financiers, was the viewpoint of his nephew. For the viewpoint of his nephew, Theodore Amory, was fairly representative of the younger, cock-sure generation which had come to the front since the war. The fact was, Douglas did not know whether the young man was financially sound. Brilliant—yes. Practical—yes and no. Douglas could not always foretell what angle his nephew would take on a given

proposition or whether he would stand hitched; he was quite likely out of a clear sky to spring something totally unexpected and new which might knock the whole solid, conservative scheme into a cocked hat. Take, for example, his attitude on common stocks. Modern, of course. But upsetting—absolutely contrary to the economic traditions in which Douglas has been immersed since his youth. And yet the lad had dug up a lot of facts which seemed to prove his case. And his views on the rights of investors—even more radical stuff. Douglas, brought up in the rough-and-tumble pioneer school of ethics of the older generation, had found business governed by the stark rule of survival of the fittest. He was not his brother's keeper. But Amory contended that the best interests of the investor must be recognized and protected in any stable, permanent system. The investor, he argued, was the modern Atlas, who held aloft on his shoulders the financial burden of the entire industrial world; it was his money which expanded business, his surplus which the bankers used. And therefore, as a matter of sheer self-interest, not philanthropy or altruism, this modern Atlas should not be left to shift for himself but should be safeguarded by the bankers to whom he furnished the sinews of war. The old days of intense individualism in finance, with every man for himself and devil take the hindmost, he declared, had passed into the discard. But had they? Had the whole world, as his nephew averred, turned over a new financial leaf since the war? And all these theories based on

modern scientific research on which Amory was so keen—just how much did they amount to, anyhow, in actual dollars and cents? That, after all, was the acid test.

Pondering these things as he blinked his shrewd old eyes in the glare of the sunset, Douglas perceived two clean-cut alternatives before him; either he could kick his nephew downstairs into a minor position in the statistician's department where his ideas could do no harm, or he could kick him upstairs into the heavy responsibility of a partnership. Smiling grimly, he leaned over to glance at the book in which the young man, oblivious to the fine sunset, had buried his nose.

"What have you there?" he demanded.

Amory looked up from his book. He was smiling broadly. "H. G. Wells:—'The World of William Clissold.' I got it from the ship's library." His broad smile still held as he inquired, "What do you think of Wells, sir, anyhow?"

"As an imaginative writer," said Douglas succinctly, "I consider him an engaging fellow. As an economic thinker, I consider him a half-baked ass. All writers who do not come into close contact with the material business of life—and by that I mean the production and trade which are the real underlying forces that are continuously pushing civilization onward—are apt to be a bit theoretical and unreal. Wells is stimulating, though."

"Let's see if you find this stimulating," laughed Amory and he read aloud:

“Quite the strongest and most remarkable of the impressions of financial men my own dealings with finance have left me is their superficiality and inattention. Men follow science and art, pursue agriculture, organize manufactures, or go upon the seas to trade, *closely*, because these things are profoundly and sustainingly interesting. But no one is in business in the City for the sake of business in the City. Men go there to come out of it again, successful.’”

Amory glanced up from his book. “How’s that for a good start?” he laughed. A spark had leaped into the older man’s deep-set eyes. “Go on,” he snapped.

“‘The activities of the City, and its younger, perhaps stronger, offspring in Wall Street—for who knows which is leading which?—affect the intimate lives of all mankind, but this is not present in the consciousness of the City. Finance is forgetful of the world in its processes, and the world thinks as little as possible about the finance that thrusts it along and pushes it about. Hardly any one in the City is going an inch further than he is obliged to do beneath the surface on which he moves his pieces. The City has grown up from forgotten beginnings; City men accept it as it is and follow its rules and traditions. They no more want an inquiry into what lies beneath it than cricketers want people to geologize beneath their pitch.’”

“‘In the course of my life I have met a certain sprinkling of bankers, and I do not think there is

any sort of human being more marvelous and incredible. They take money for granted as a terrier takes rats; when they see it, they go for it; but they are absolutely immune to any philosophic curiosity about it. From no other profession do men fly so rapidly to the distraction of other occupations; bankers become collectors, naturalists, historians, critical writers; the profession is a hotbed of amateurs. The world of banking and finance draws princely incomes from processes it does not understand clearly and that, with a strong self-protective instinct, it will, if it can, prevent anyone from understanding clearly.'"

Amory lowered his book. "What do you think of that?" he demanded gaily.

"Is that all the indictment?" Douglas was staring straight out to sea. He had put on the business man's poker face, and his heavy, chiseled features resembled those of some old Roman consul of Caesar's day.

"No, sir," grinned Amory. "But brace yourself. The worst is still to come." He continued:

"No doubt the activities of the City tangle the whole world, but they do so aimlessly. The men who rush about its narrow ways do not know what they are up to. They would be very angry to be told as much, but so it is. They impress themselves and each other and their clerks and their typists and the anxious, greedy investing public as strong men and bold men and decisive men and little Napoleons; some of them are controlling altogether



colossal sums; but in their heads are brains—it is offensive but it must be said—inadequately developed. They are youngsters who have never taken time to grow up, youngsters overblown. They have never struggled on to the fully adult stage. They are ignorant of fundamentals, they do not see themselves plainly, they are individualistic in their aims, the sense of being a possible part in one complete social organization has not come to them, and all these characteristics are the characteristics of immaturity.’ ”

Amory laid down his book. “Well,” he challenged, “what about it? Is the criticism fair?”

“I’d like you to answer that question yourself, my boy.”

“Of course it’s not,” admitted the young man frankly. “It’s overdrawn, exaggerated, caricatured a bit in order to make his point. Nevertheless,” he laughed, “there’s truth and power in it. I thought he drew quite a recognizable portrait of some of our pompous banking friends. You know as well as I do that there’s an amazing lot of bunk going the rounds about business leadership, Napoleons of finance and the like. And the truth is that some of these little Napoleons don’t know enough to come in out of the rain. The financiers themselves don’t know where to get off these days; they’re groping in the dark, still operating in terms of yesterday. Isn’t that so, sir?”

“I’ll admit there’s a grain of truth in his strictures,” replied Douglas soberly. “But the trouble is



that Wells himself doesn't see clearly on account of his propagandist squint. Bunk? Of course there's bunk. The world's alive with it. In politics, in business, in religion. But you've got to have leadership, and the minute you've got it, the people begin to build a myth around that leadership."

"But Wells' point is that it's a case of the blind leading the blind."

"I got that," retorted the older man impatiently. "But leaders are always going to be eulogized or damned, and credited with more knowledge and power than they actually possess. The masses, the press, demand little tin gods. Some of our small-caliber leaders of finance, I'll admit, take this hero-worship to heart. And it's probably some of these stuffed shirts Wells has met." He added dryly, "I've met a few myself."

"But," he continued aggressively, "the investment bankers of America who are directing the flow of this country's surpluses are not a set of imbeciles or adolescents. They are probably the keenest group of business men in America."

"Agreed. But——"

"And moreover, my boy, the confidence of the public in the knowledge and ability of these leaders is absolutely necessary; for it encourages the conservation and direction of our surpluses in the channels the bankers believe will be most productive."

"Yes, but ——"

"Probably if the investors realized all the uncertainties the banker has to consider and weigh before

deciding on a loan, they wouldn't dare touch it with a ten-foot pole. They'd keep their money hidden under the mattress or in an old stocking. Then where would our prosperity be? No," as the young man opened his mouth again to speak, "let me just finish this point. Confidence is the bed-rock on which all business is based. Take, for example, this ship. We pay down our money for fares and we trust the captain to run the ship; that's his, not our, job. It's a risk. But it's a good risk. In the same fashion the investors must have confidence in their leaders to whom they turn over their surpluses for investment. And if you look at the general prosperity of the country—not only of the favored few, but of the whole broad mass of the people—you must admit that the confidence has not been misplaced." He finished complacently, "Their leaders have done pretty well by the people, eh?"

"You speak, sir," retorted Amory, "as if the leaders had made the prosperity, as if they'd manufactured it and had a patent on it. And you know that is not the fact. Big economic forces have been behind our expansion. And the question still remains, whether the leaders, if they were better economists, keener students of underlying financial factors, couldn't have made a better showing than they have. You say, for example, that the bankers direct the funds of the investors of this country into the most productive channels. But most productive for whom? For the investor, for the banker, or for

the corporation begging for a loan? Just where does the investor get off?"

"Humph!" grunted Douglas, who was keenly enjoying this tussle of wits. Like all real leaders, he was not averse to picking other men's brains for the meat they contained, concealing his own views the while. "That's a fine question for a man who's been earning his bread and butter for two years as a bond salesman to ask! You know from your own experience that the investment banker's natural habitat is between the devil and the deep blue sea."

"And that," said Amory soberly, "describes very accurately the position in which the average investor finds himself to-day. For what are investment bankers? They are keen, hard-headed business men who are merchandising securities. They are not particularly interested in a zealous analysis of the underlying forces affecting the values in which they deal. Why should they be? Their profit comes from turning over their merchandise. They themselves don't hold it long enough to be seriously affected by those fundamental forces. It is the investor who is affected by them; and very often he gets the short end of the stick. But so long as he doesn't recognize his predicament, so long as he remains complacent in his ignorance, he comes back for more, and the investment banker retains his clientele, despite the mediocre results his customers obtain from the investment of their funds."

"All right—admit that the investor sometimes gets a 'lemon'," agreed Douglas. "He's not the only one."

I've been stung more times myself than I'd like to mention. Getting stung means getting experience."

"But the cases are not parallel," protested Amory. "You know your devil and you know your deep blue sea, and you know how to chart your course; the investor doesn't know anything about anything—not even that he is ignorant. The defect is in the system itself; and that defect operates in favor of the banker and against the best interests of the investor."

"How so?" probed Douglas.

"Well, let's put it this way. The ordinary, intelligent man, when he is ill, doesn't call in the vendor of patent medicines; he consults a doctor. The home-builder doesn't go to a lumber merchant; he employs an architect. But the investor, in the most important and complex business of his financial life—the upbuilding and direction of his surplus capital—goes to a merchant of securities, whose aim is to sell his particular merchandise. And whom does the security merchant provide to counsel and guide these customers? Usually, clever young college graduates of pleasing personality, who know little about the fundamentals of investing and feel no compunction in urging the investor to concentrate as much of his capital as possible in the particular class of merchandise that the salesman has on hand; and his recommendations are usually influenced, to some extent at least, by the number of points profit that will be divided between the firm and himself. Do you call that good leadership?"



Douglas smiled. "What would you say?"

"I say it works out pretty well for the seller of merchandise who invented the system; and also for the bond salesman so long as he assumes that his sole responsibility is to his employer. When he feels that his customer's welfare is his main responsibility, however, he is likely to get into hot water. Take, for example, a conscientious bond salesman who desires to do the best he can for his customers. He suggests, we will say, to a certain customer that instead of buying his firm's issues, the client's funds might be better placed in U. S. Treasury Certificates or General Electric stock on which his house would make only a brokerage commission. How long would that man last as a bond salesman?"

His uncle stared thoughtfully out to sea. "In some investment houses, no doubt, he would be thrown out on his ear. But in other high-class firms which value integrity, I should say that man might last a long while." He flung aside his steamer rug and got to his feet. "Let's walk. This air feels good."

As they paced the deck Douglas continued, "Now, my boy, let's line up this situation according to the facts. To begin with, the reputable investment banker is striving to perform a real economic service to the community, but he must perform that service in such a way that he will make money out of it or he can't live. The first requirement for a successful merchant is that he cater to the tastes and whims of his customers. The hindsight studies that have been made recently of the long-term values in common

stocks are very interesting and useful in helping the investor as well as the banker to get a clearer perspective. But the background that we had in the early 1900's was entirely different from the background you have to-day; the common stock is an altogether changed investment vehicle. And as for the average investor, he wouldn't touch common stocks with a ten-foot pole until recent years. The bankers of the country have for the most part had to finance our rapidly growing industries by bonds, which was the only medium that the investor understood and had faith in. In distributing these bonds we've tried to make the package as attractive as possible, the same as any other good merchant would do. The security merchandise that has been distributed may not have been the best that could have been obtained for the investor, but it was the only merchandise that he understood and would buy; and in the great majority of cases it was honest merchandise, honestly distributed.

"As you have pointed out, the interests of the borrower are usually opposed to those of the lender. The borrower wants to pay as little as possible for the use of capital with the fewest possible restrictions, and with options which tend to deprive the investor of any advantage that might come to him through lower interest rates and so on. Well, the borrower is stronger, knows more than the great mass of investors, and when interest rates are low he insists on issuing only long-term bonds; when they are high, short-term or callable bonds—and be-

ing in a strategic position, he usually gets away with it."

"And the bond dealer has to encourage his customers to take the securities just the same!"

"Certainly," admitted Douglas. "Somebody's got to take them. Added to that fact, the large wholesaler of securities who does practically no retailing, is of course more interested in serving the corporation than in looking after the investor. He must be. Being a banker for half a dozen big corporations is worth a fortune to some large wholesalers. When a railroad, for example, begins to go downhill, its bankers who have made money out of financing it in prosperous years can't throw it over as long as there is a reasonable chance for a comeback. The road can get plenty of other firms to finance it, and the original banker would lose it as a client permanently. So the bankers finance it, hoping for the best."

"You mean the bankers in such a case pass the buck to the public?" suggested Amory.

"Business must be served," observed Douglas philosophically. "I'm not saying the system is perfect; I'm just trying to point out to you the forces which the investment banker is up against. There are many defects that we are trying gradually to iron out. What happens, for instance, when one of these big wholesalers brings out a new issue? He sends around to the retail firms a telegram, describing a few of the favorable points of the bonds, the prices at which they are to be sold, the retailer's profit, and adds that he has mailed a circular giving



complete details. The partners of the retail firm get the telegram at nine in the morning and know they have only an hour or less in which to investigate the issue and accept before the books are closed and the opportunity gone; and unless they want their competitors to beat them, they know they'd better cut out the investigation and start offering those bonds to their customers by telephone about 9:03 a. m.

"I shall never forget," he continued soberly, "what the senior partner of one of the big wholesalers said on the witness stand in 1913, after his firm had sold those New Haven bonds which soon turned sour. His first duty, he testified, was to help the railroad, whose banker he was, and to obtain capital for the road when it needed it."

"And to hell with the investors, I suppose," said Amory indignantly.

"Well," replied Douglas mildly, "if I had owned some of those bonds I should have considered myself warranted in making such a deduction, perhaps. Personally—and mind you, I don't believe in judging too stringently the conduct of my fellow men—but speaking personally, I have an old-fashioned prejudice in favor of being like Cæsar's wife, above reproach, in my business practices. Not because I hold myself more righteous than others, but simply because I like to sleep at night."

Amory started to speak, but the older man stopped him with a gesture. "And now to return to the bond dealer. What happens when he tries to pick and

choose too much among the new issues offered him? A few years ago our firm turned down some bonds—the Kingdom of Graustark 8s—in view of the fact that the 7½s already outstanding were more desirable because of a higher call price. Then about two years later the same bankers brought out Graustark 6s which were very attractive, and we wanted to sell them but weren't offered a participation. The answer we received when we called up to ask why we had been omitted was, 'If you don't like Graustark, don't buy its bonds. But if you wouldn't take the 8s which were hard to sell, don't expect now to get in on these 6s which are so attractive that they will sell themselves! You turned down our Graustark 8s which didn't go so well, and now we feel that we should give this new issue to those dealers who put their shoulders to the wheel on the 8s.' And so we lost a tidy little sum by what the wholesaler would doubtless call over-fastidiousness. We were too choosy for him."

"Nevertheless, it pays to be choosy in the long run."

"I think so, my boy. But I'm merely pointing out what the investment banker is up against. Some dealers, of course, are willing to take anything the big fellows bring out, and these are the dealers who get the large participations. Occasionally, they originate an issue themselves, and that is where the really big profit lies. Let us suppose a certain firm has a chance at floating such an issue. Upon completing investigations, it discovers that the proposi-

tion is just on the borderline between what is barely safe enough to sell and what isn't. If the firm decides against it—expensive investigations for nothing. If it decides for it—a good profit.”

“If it doesn't flop.”

“Exactly. Well, suppose the firm rejects it. Too much risk. There are so many investment bankers these days, all anxious to originate business, that if a firm is too squeamish, some other firm with lower standards and more robust appetite grabs the business and the investor is soaked with the bonds anyway. The same thing is true if a firm holds out for really favorable terms for the investor. Sometimes he puts it across. Many times, in fact. That's where the integrity of an investment banker comes in. But we know that a corporation's aim in negotiating a loan is to obtain money on as favorable terms as possible to itself; and if the terms do not suit it, that corporation turns to another dealer who offers it a better price.”

“So the investor usually gets the short end of the stick anyhow.”

“Well, he's not obliged to buy the bonds. If he is ignorant or inexperienced, he shouldn't expect every purchase to turn out perfectly. But if he is prudent enough to select a high-grade banking house to deal with, he'll average out pretty well in the long run.”

“I know something about how these issues are floated,” said Amory, “and I should say that the interests of the investor don't get much consideration. The firm of Smith, Jones and Co., let us say, origi-

nate an issue of Industrial Iron 5s, due 1940. It bites off as much as it can chew and perhaps a little more. It reserves \$3,000,000 of bonds to retail itself—a stiffish lot. It will require the maximum effort of the sales force to get those bonds placed, but it's worth the trouble, as the firm, being the originators, makes a fat profit—around six points per bond. What does the firm do? It calls in all the salesmen, gives them a fine luncheon, makes enthusiastic speeches explaining how wonderful the bonds are, and urges the salesmen to go out and sell as many Industrial Iron 5s as they can. 'England expects every man to do his duty' and so on.

"And the salesmen need no urging; their participation in the six points profit is urge enough to most salesmen working largely on a commission. If the public is lukewarm, the sales manager whips up his force to renewed efforts.

"Under such circumstances, how much attention does the salesman pay to his customer's diversification program, and to what extent does he choose the issue best suited to his customer's need? How often does a young salesman with a wife and two children, who is working on a monthly salary of \$200 and commission, come back to the office and report: 'I have just been to see a woman who has \$10,000 to invest. She has confidence in me and will buy anything I suggest. I could have sold her \$10,000 Industrial Iron 5s, and made \$450 profit for the firm and \$150 commission for myself; but I thought she had enough industrial bonds already, so I persuaded



her to give me an order to buy \$5,000 New York Central 3½s, and \$5,000 Union Pacific 4s on commission, and on these ten bonds the firm will make \$15 profit and I will make \$5 commission.' What do you suppose would happen, uncle, to a young man who turned in that kind of report to the sales manager of a go-getter firm like Smith, Jones and Co.?"

"I suspect," replied Douglas, chuckling, "that they would advise that young gentleman to turn his distinguished talents toward the ministry, or to take up missionary work among the cannibals on the shores of Timbuctoo, where they eat the missionaries, skin, bones and hymn-book too."

They swung along in silence for a space, and then Amory broke forth again. "I suppose that what I object to in the present system of distributing securities—and I admit that self-interest is a law of nature and that the security merchant, like other merchants, must look to his own profit—is that the interest of the investor isn't adequately taken care of. The mechanism itself is faulty in that respect. Isn't it a little like asking the lion and the lamb to lie down together? Of course the lion regards that as a pleasant arrangement. But isn't it a tactical error for the lamb?"

"What do you suggest?" queried Douglas shrewdly.

"Improve the machinery—make it more efficient all around; put a buffer between the lion and the lamb."

Douglas pondered this thoughtfully without reply.

Presently he glanced at his watch. "I promised Stanton, the automobile manufacturer, that I'd drop in at the bar for a little snifter with him. Come on, I want you to meet him. He's an ace in his line—climbed up in the last ten years."

They sauntered in to the bar, and Douglas was greeted by a lean, angular man seated at a table with a slight, middle-aged companion with bright, dark eyes who was introduced as Mr. Daly, one of the secretaries of a prominent insurance company.

"Gentlemen," said Douglas genially, "in my nephew here you behold a reformed bond salesman, the investor's delight, who has not yet realized that, from the broader viewpoint, the welfare and success of the active user and borrower of capital are of far greater importance to the progress of the world than the welfare of the investor clutching his little pot of gold. He has some ideas on stocks and bonds, derived from statistical studies, that would curdle the blood of some of my honorable, conservative colleagues. And the devil of it is, there's just an offchance that he may be right. At any rate, I've decided to kick him upstairs into a partnership, and if he can make his scientific ideas pay for their board and lodging, all right. If not, out they go."

Ignoring his nephew's delighted and amazed countenance, which was suddenly overspread with a deep flush, he turned briskly to the insurance man.

"What do you think of this market, Mr. Daly? Are your people lapping up all these long-term  $4\frac{1}{2}$  per

cent debentures that the public is being gradually educated up to?"

"There's not much else to do," replied Daly, "unless we buy Liberties or some of the high-grade rails that are now down to a 4 per cent basis. In either case, the net return, after taxes, on high-grade seasoned issues falls to about  $3\frac{1}{2}$  per cent."

"How about stocks?" queried Douglas, with a humorous side-glance at his nephew, whose thunder he calmly proceeded to steal. "Seems to me I heard somewhere that several years ago your company had adopted a policy of putting around 25 per cent of its investments into common stocks. You could have bought them on a better average net yield, and in addition you have some chance for growth."

"Well," said Daly, "our company did decide to take on some common stocks in 1924, but it was the consensus of opinion that stocks were then at their peak, and so the committee decided to wait for a substantial reaction in the market."

"Which failed to materialize," chuckled Douglas. "So you can't put your policy into action because the market has been going steadily up?"

"That's about the size of it," agreed the bright-eyed little man.

"And your committee is conservative, eh?"

"Too much so, I'm afraid."

"What do you say to that?" Douglas turned to his nephew with the suspicion of a twinkle in his eye. "My nephew," he explained to Daly, "has been making some intensive studies along that line."



"You say your committee is composed of conservative men?" queried Amory. Daly nodded. "And they show their ultra-conservatism by trying to pick the top and the bottom of the market! Well, I for one do not know where they could find a more truly speculative field of endeavor, with fewer chances of success. I've heard of individuals and institutions that were supposed to be clever at picking the exact top and exact bottom of the market; but, as a matter of fact, nobody on earth knows where those two extremes are until after they have materialized, when the hindsight knowledge is of no use. And I have yet to find the man who has been as successful at this highly speculative method of operation as is the true investor who considers himself a partner in business and sticks to his stocks as long as he has faith in the management and soundness of the enterprises in which he buys shares. If your committee is going to gamble on the ups and downs of the speculative fever which has seized this country, what the gentlemen need is a psychologist of mob emotion rather than an economist or student of business conditions."

"I am inclined to agree with you," said Daly. "I made an analysis of the investment accomplishment of our company from the beginning of the century up to 1924, and what do you suppose I found to be the average annual return we had made on our investments for that period?"

"Well," laughed Douglas, "if your figures paralleled those made by my nephew, the return was so

low that it would have paid your company to have sent off your high-priced investment committee on a fishing-trip with full salary for the twenty-four years. What was that figure, my boy?"

"Less than  $3\frac{1}{2}$  per cent, I think," said Amory.

"That's right," confirmed Daly. "Mine was 3.24 per cent. When I thought of the time that had been devoted by those high-powered executives on our committee, week in and week out for twenty-four years, and the net result of all their labor an annual return of only 3.24 per cent, frankly, sir, I didn't know what to think of it."

Douglas chuckled. "You mean your figures knocked the pretensions of your committee as grand moguls of finance into a cocked hat! But what did they think of your figures? Refused to believe 'em, I suppose?"

"Yes, sir," nodded the little man, "that's just what happened." (Douglas laughed outright.) "There was a lot of difference of opinion in the committee-room that afternoon. Some just refused to believe the figures—said they were manifestly absurd. One excitable gentleman got up and said if they were such fools as those figures made out they ought to be shut up in an institution for defectives. As they weren't morons, it was plain the figures lied. Another gentleman wanted to see comparative figures showing the investment skill of other insurance companies."

"That would have been interesting," remarked Amory. "Did you do it?"

"Yes," said Daly modestly. "I had already done it before turning in my report. And I was able to tell the committee that the showing of many of the other companies was about as poor as our own."

"That must have alleviated their wounded pride," commented Douglas with dry humor.

"I'd like to see that report," suggested Amory.

"I'll be glad to send it to you," said Daly. "My studies covered from 1901 to 1924. Our average return would probably be nearer  $3\frac{1}{2}$  per cent or  $3\frac{3}{4}$  per cent if brought up to date, because of the appreciation of bond prices since 1924. Of course, in terms of dollar returns, the showing is much better, because our invested assets have more than doubled since the war, and all this new money has been invested when everything was going up. But what I was trying to do was to measure the investment skill of our committee over a term of years. The fact that we have had more money to invest during the last seven or eight years is just a favorable circumstance for us."

"I bet you wouldn't get your committee to subscribe to that opinion!" laughed Stanton, who had been an interested listener. "And when you think of it, what a lot of bluff and bunk the poor innocent investor has to swallow these days. Take myself, as an investor, for example——"

"Stick to facts, man!" interrupted Douglas. "You're neither poor nor innocent. I wish I were half as clever as you are in bluffing your way into

the confidence of the people of this country. But go on."

"What I was about to say," continued Stanton, undisturbed, "corroborates Daly's conclusions, but from another angle. When my father died in 1913, my sister and I inherited approximately \$100,000 apiece from his estate. Shortly afterward, my sister's husband died, leaving her with two children and a law practice that had no cash value at his death. Following the usual procedure, my sister, under advice, put her money into high-grade bonds yielding about 5 per cent. This, in 1913, netted her an income of about \$5,000. But in 1920, with the same bonds and \$5,000 income, she had to give up her maid and do some close figuring to make ends meet. The purchasing power of the dollar had decreased; the standards of living were higher; and food, clothes, and labor cost more. She needed a greater purchasing power in 1920 in order to maintain her relative position in the social scale, and actually that purchasing power was cut in half. Although there was never any question about their safety, the market value of her bonds was only about \$75,000 in 1920, and while her income was still \$5,000, it amounted to only \$2,500 in 1913 dollars. Well, of course, her family stepped into the breach. But the point I wish to make is that an honest, conscientious banker of the old school, who believed that common stocks were synonymous with speculation, had warned her against putting her inheritance into



those dangerous channels. He also warned me against 'speculating' by purchasing common stocks.

"Well, I realized I was no wizard in the realm of high finance, but I couldn't figure out how the big business men of the country could continue to pay interest on bonds and accumulate fortunes for themselves unless they made more from the use of the money they borrowed than they paid the lenders. I knew that Mr. Morgan had a lot of his money invested in U. S. Steel common, that Mr. Vanderbilt owned New York Central stock, and that the wealth of the greatest financiers of the country was concentrated in shares that represented ownership of property, rather than bonds that represented a promise to pay dollars at some future date. So I decided to follow their example.

"I had always noticed the record of the Dow-Jones Stock Averages in the newspapers and learned that they were generally accepted as a fair cross-section of America's leading industries. And when I realized that I could go into partnership with Mr. Morgan, Mr. Rockefeller, and Mr. Vanderbilt on an even basis in their big business enterprises, it appeared inviting to me, and I divided my \$100,000 among the stocks carried in the Dow-Jones Averages. I kept my funds pretty well diversified among these stocks, and whenever they were changed in order to keep them representative of the country's business, I changed with them. In spite of the big drop these stocks suffered in 1920, the principal value of the original investment at the lowest point in 1920

was over \$175,000, and my income for that year was over \$12,000 in cash.

"Well, you know the story of ascending prices from that year. That particular fund now has a market value of over \$400,000 and last year produced an income of about \$17,000. Theoretically, I may have speculated and my sister may have been a conservative investor; but my head is too thick to see just how this tradition can be justified by experience. Regardless of preconceived ideas, I believe the method of investment which most consistently increases capital and income is the safest. Any attempt to justify losses by claiming that they were incurred by following a so-called conservative program is a misconception of terms. Safety may justify the sacrifice of maximum gains, but it does not justify losses."

"All of which is very interesting in the greatest bull market of all time," commented Douglas, "but wait until that market breaks. This continued orgy of speculation is bound to have bad results. It's getting to a point now that when I want a taxicab from my office, a clerk has to go round to the board-room of a brokerage house on the corner and get the driver out. My chauffeur recognized a subway guard in a brokerage office the other day, and wondered whether he was there to trade or to keep the traffic moving!

"Well, gentlemen," he concluded, rising, "I don't know how you feel, but this conversation plus the sea air has given me an appetite. The meat of this

discussion, if I may venture to sum it up, is that ignorance and bluff among our financial leaders are not quite so marked as Mr. Wells appears to believe; and yet there is some color of truth in his remarks which we would do well to ponder upon. Bankers, like other men, are blinded in their interpretation of events by personal prejudices, by tradition and by economic judgments which seemed valid enough in their youth, but which changing conditions have modified or completely overturned.

"In the field of finance, which has altered radically in these recent postwar years, we have not kept our practices geared up to the current facts of the case. Blinded by the light of our own narrow experiences, which before the war were provincial or even parochial in character, we have been slow to realize that we have now entered upon a larger, an international, phase of affairs, in which we shall have need of all the fundamental facts of the case—all the statistical data and the scientific studies that are available. And we dare not say that these fundamental facts lie, in order to ease our hurt pride. Science has become the handmaiden of modern industry, as is testified by our vast industrial enterprises with their costly research departments.

"So in the investment field as in other fields, we are inevitably committed to the scientific findings of our times. But scientific fact is not the last word in this field; it requires in addition executives of broad vision and ripe experience to interpret and evaluate these facts. And the just claims of the in-



vestor must be considered, for he not only provides us with ammunition but also the ultimate market for our wares. He must therefore have an honorable place in the system and not be ruthlessly pushed aside. In other words, we have passed the pioneer stage of intense individualism which was rampant in my youth; we are definitely embarked on the second stage of our economic development, and now we must look to our machinery and see that it operates smoothly, efficiently, and justly to all parties concerned."

His glance strayed to the door and he broke off with a rueful laugh. "Gentlemen, I see my wife shaking her head at me from the corridor. I promised her on this trip not to talk business, or think business, or even dream business. . . . I wish you good night and Godspeed!"

## *Chapter I*

### EVOLUTION OF THE SURPLUS AND CHANGING INVESTMENT VALUES

BEFORE the dawn of civilization, there was no problem of investment. Earliest prehistoric man probably roamed the countryside, searching for food and shelter, with no tools other than his hands, guided by instinct and a dull wit. Time meant little or nothing to primitive man. Aroused from prolonged slumber by pangs of hunger, he would forage for food; with food at hand, he would gorge himself, giving free rein to gluttony while gluttony was possible; having eaten, he would stumble torpidly to some nearby shelter to sleep; and, animals and elements permitting, this sleep would continue until hunger again made its demands. Primitive man had no problem of investment.

One day, perhaps, primeval man gathered more nuts or other edibles than he could conveniently consume at the moment. And in a flash of genius the thought occurred to him that, if he could store some of the surplus until the morrow, he would not be so hard put to it to find food. These surplus edibles constituted his wealth, and for the first time man had a problem of investment. They had to be guarded against risks of loss; and the first invest-

ment problem may have been solved by storing this surplus food in a cave, or some other hiding place.

With the coming of the next day, primitive man's status had changed. He was a capitalist. He could lie on his bed of twigs and leaves and commiserate, if he did not laugh at, the plight of his fellows who were up and at the age-old quest for food. And perhaps while resting content in the security of his surplus, another flash of genius struck him. He may have said to himself, "Now that I do not have to look for food today, I think I'll see if I can find a stone with a sharp edge, a stout small bough of a tree, and some fine tough vines with which I can tie the stone to one end of the stick. I've always thought that such a contraption would help me in my business of getting food, but I've never before had time to fix it up."

#### THE STONE AXE AS CAPITAL

While others were looking for berries and nuts and taking their fill, the first stone axe was fashioned. With the aid of this stone axe, crude as it was, new fields of endeavor were opened. It was found useful in cutting a way through brush so thick as to be otherwise impenetrable; and by cutting through some of these formerly impassable areas, new plants and foods were discovered. Then one day it was used to kill some native fowl perched on a low branch; later, animals were killed with this axe. Man had appreciably widened his horizon, had taken an important step toward civilization on the day

when this first stone axe was fashioned. At the end of that memorable day man's surplus of food was gone but he had an axe—a new kind of surplus and a new form of capital. And the investment problem continued.

Skipping several thousand years, we find the tribes and nations of Asia Minor established on a thriving plane of life, under the patriarchal, or family, system of government. Fertile valleys supplied pasture for herds and flocks; industrious families cultivated and harvested grain. The surplus of these peoples was chiefly in cattle and grain—this was their investment. There were certain risks to these investments, such as drought in the valley, disease of the cattle, or theft of the grain. But in a way even these people had discovered the desirability of being prepared for any emergency—of hedging. By putting their capital into both herds and grain, they were protected against loss of the herds through failure of pasturage, for there was always the store of grain which could be fed to the cattle. This was merely one way of reducing the risk of loss in their investment.

Although the ancient peoples in Babylon and Syria and Egypt had developed a high civilization, their problems of investment were, after all, rather simple. With reasonable diligence on the part of shepherds, flocks and herds could be guarded against loss. Grain was easily stored and accounted for. The individual investor had close contact with his capital and an immediate control.

## AND THEN CAME MONEY

Again ignoring the passage of centuries, we come upon a civilization of the Middle Ages with business still on a simple scale but dominated by the use of money. Originally grain or some other commodity was used as a medium of exchange; later precious metals were "coined" into tokens representing a certain measure of grain, the metal itself having an equivalent value in exchange for commodities or services. Economic life was on a domestic basis; each household or community produced all it consumed; trade consisted of local exchanges of commodities and of coins—in other words, the first step beyond barter. The surplus of each family was invested in the essentials of a simple life with an amount in the current coins.

But along with this gradual development, new factors were being introduced into the investment problem. Long before the dawn of international commerce, as we know it today, spices were brought from distant ports. A merchant with a store of rare spices from India—his surplus—might find that his spices had actually little value in exchange the day after some ship had come to port with a cargo of the same kind of spices. Coins were always honored in exchange for commodities, but the same coin would not always purchase the same amount of a given commodity at different times. Purchasing power, or exchange value, had become an element in the inves-



tor's problem; his problem, however, was still relatively simple. A man's surplus was usually in the form of coins which were easily exchangeable, commodities which could be consumed or traded, or such things as cattle, ships, farming equipment, and other simple tools that he himself could use in the production of everyday commodities. The investor had certain risks but he knew how to meet them because he had an unobstructed view of all the facts in the case. His capital was tangible, under his own management, and not confused by the influence of complex factors beyond his control or understanding.

#### INVESTMENT BECOMES A COMPLICATED PROBLEM

Three developments of the nineteenth century, although providing greater opportunities, were responsible for increasing the difficulty of the investor's problem—the industrial revolution, the widespread use of the corporate form of organization, and the increased facilities provided by transportation and communication.

The industrial revolution with its introduction of power machinery and modern production methods gave rise to the modern factory, an industrial organization, separately housed, employing great numbers of people, and requiring large capital. In many instances, the original factories were owned by wealthy men who risked a large portion of their wealth in such industrial enterprises. When industry was

conducted on a small scale and was local in scope, every tradesman or artisan knew approximately the limitations and demands of his market. With industry on a factory scale, foreign markets had to be tapped, involving greater risk and consequent uncertainty of success. The conduct of business became more hazardous; gains were greater—but in compensation for greater risks. Investors stood to gain more—and to lose more.

Gradually factories grew in productive capacity and in number. Soon business men discovered that the corporation offered a solution to problems of organization as well as of finance. When an individual owner saw industrial opportunities of which he could not take advantage with his own capital, he could incorporate the business, and sell shares of stock. Shares were not new instruments. Even in the seventeenth century trading companies were organized in England to conduct various ventures and were financed by subscription to shares; but in almost all instances these shares were taken up by wealthy noblemen willing to undertake a frank and admitted speculation for the chance of great gain. The corporate form was not new; its use as a financing medium that provided investment opportunities rather than speculative ones, however, was new.

But with the utilization of the corporate form, investors' problems multiplied. Control and ownership had been separated. Often the investor did not know even remotely the managers. He was ignorant of the policies and practices of the company, and had

little personal knowledge of the productive facilities.

Of course, a major part of this development was dependent upon the increased facilities of transportation and communication. Large industrial corporations had to serve wide territories in order to distribute their output. Railroads made this possible. Telephone and telegraph united widely separated businesses. Industrial life became national rather than local—and then international. And in exactly the same degree investors' problems became national and international where formerly they had been local.

Not only has the tremendous growth in the world's stored-up surplus been reflected in an increasing size of separate business organizations, but also the greater economies and opportunities opened up through the combination of many small business enterprises into a few powerful industrial giants have resulted in a growth of individual corporations at a much faster pace than industry itself. The stronger organizations have absorbed or overpowered those weaker and less capable. The increased efficiency of our higher civilization and continued progress demanded that the control and direction of this increased wealth be concentrated in those organizations that had demonstrated greatest ability. The less able have had to accept the domination of their more powerful competitors, or suffer extinction. There is no longer opportunity for the average capitalist to invest his surplus in tangible productive wealth within his own control except in a limited way or in

the face of the greater hazards of competition from the powerful and more efficient industrial enterprises that have now expanded their enlarged corporate managements into almost every field of business endeavor.

#### CALLING IN THE PUBLIC

No single capitalist could finance and manage a Steel Corporation or a General Motors Company. Not even a group of financiers! What was the answer? Public subscription to security flotations by an increasing number of individuals whose standard of living and share in the country's wealth had concurrently increased. The opportunity was open for the business man and for the professional man, and even for the wage earner, to invest his surplus in the world's greatest business enterprises. Did the business man or the professional man have the qualifications or the knowledge to justify his entry into this complex field of investment? None was needed, from the standpoint of the investment banker or security merchant if the investor had the capital. We have, then, the anomalous situation of the problems of investment becoming more complex and inscrutable as the increasing body of investors became less and less fitted to cope with any investment problems, even the simplest.

Figuratively, the investor of former centuries was a giant, towering over with his surplus the simple problem of putting his capital into small and local

businesses. Today the investor is a pygmy, weak and confused, when assaulting the gigantic problems with which he must cope. He is a pygmy in a vast and unmapped forest of risks. He knows the objects he wishes to attain by investment—security and appreciation of principal and income—but he does not know the path he must travel through this forest of risks to reach that objective.

What consideration must be given to political factors of national government? Of state government? What about export shipments of manufactured goods? Of gold? What is the effect on domestic securities of large imports from other countries? How will interest rates affect stocks? Bonds? Are interest rates likely to go up? Or down? And how long is such a trend likely to continue? What are earning statements showing? What is the current trend in dividend payments? Should business failures be considered? Which industries are showing the most consistent growth? Which are showing a decline? What branches of industry are most likely because of their sound economic position to show better results in the future? Which industries are decaying? What is the effect of changes in the management of this company? Or of a new bond issue for that company? What about commodity prices? But we must not go on listing the various factors influencing investment values, for this discussion cannot be stretched out long enough to cover a complete enumeration.

Any one who is willing to make even a hasty in-



quiry into the field of investment securities will readily appreciate that stocks and bonds represent one of the most intricate forms of surplus known to man. As tokens of wealth they designate the existence of composite surpluses, whose market values are governed by myriad elements, many of which are intangible and, therefore, indeterminate. If a man owns land, a house, or an automobile, he possesses something tangible which he can inspect with a view to appraising its current worth. But in the case of securities, real and prospective values are almost invariably obscured by equations and counter-equations discernible only in part even by the trained analyst.

#### NEEDED—A SCIENTIFIC GUIDE

The investor of today—whether an individual buying hundred dollar bonds or an institution buying and selling millions of dollars of securities—needs more than anything else a scientific approach to the solution of this investment problem. He wanders blindly in a forest of dividend rates, yields, forecasts, tips, doctored facts, as well as the ever-present bond salesmen's suggestions. Where is the way out? How shall the investor set about getting his direction, and then cutting through this mass of underbrush until he can see clearly the road he must travel to reach his objective? How can he get out of the woods?

## *Chapter II*

### INSURANCE PRINCIPLES APPLIED TO INVESTMENT

How shall we attack this problem in which must be considered the great confusion of conflicting factors variously affecting different types of investment risks—factors which the human mind has been found incapable of interpreting or evaluating, even approximately? One way would be to study some other business—for investment too is a business—that presents similar complexities; some other enterprise, the prosperity of which depends upon the accurate analysis of intangible risks.

Any business, whether it is that of an automobile manufacturer or a bootblack, involves some degree of risk. One important business enterprise, however, has been built upon risks, and it is in this business that most has been learned about the science of minimizing and overcoming risks. This outstanding example of a business built upon the successful appraisal of risks is the insurance company. The very word “insure” means to make sure or certain, to guarantee, to convert uncertainty into certainty. No other business ever devised by man has so well succeeded in superimposing a structure of certainty upon a base of uncertainty. The insurance company does not ignore or eliminate the existence of risks; on the

contrary, it assumes risks. When we take out a life insurance policy the insurance company is not ignoring or eliminating the risk of death, for that obviously would be impossible; the company assumes that risk, relieving our families of the hazard of financial loss through death.

Just as the insurance company cannot eliminate the risks in which it deals, so also the investor cannot eliminate the risks of loss in investment. But as the insurance company intelligently selects and discriminates between the risks which it assumes, so also should it be possible for the investor intelligently to select and discriminate between the risks he assumes. Insurance companies make a profit out of assuming risks, and perhaps this is also possible for the investor through the adoption of underwriting principles similar to those whose soundness has been demonstrated by insurance experience.

Why can an insurance company afford to guarantee a person against loss by fire or by death in return for the payment of a small sum? There are no seers or necromancers in the insurance business. An insurance company cannot foresee or foretell when a man is going to die or when his house is going to burn. But given one hundred thousand men or one hundred thousand houses, the insurance company can make a close estimate of the number of men out of that hundred thousand who are going to die within the year or the number of houses that are going to burn. Yet this does not give us a full explanation. Suppose some one were to meet us on

the street tomorrow and ask us how much money we would charge to insure against fire 10,000 homes of a certain type distributed in several large cities for \$10,000 each, what would be our answer? Let us say that as a result of all our personal experiences and careful reasoning on the subject we guess that about  $1/10$  of 1 per cent would be a fair payment in the form of premiums. Since our total insured value would be \$100,000,000, we would be receiving \$100,000 in premiums. But if out of our 10,000 houses, 20 burned during the year and showed a complete loss, we would have to pay out \$200,000—showing a net loss of \$100,000. Yet our estimate would have been incorrect by only  $1/10$  of 1 per cent. The fact that we would have come so close to the correct figure would be small consolation for the loss of \$100,000. Although we might call ourselves in this case insurers, we would turn out to be gamblers. And all because we did not *know* the risk, but *guessed* at it. Yet when we play the rôle of investor, what do we *know* about the risks we take?

The insurance company knows its risks—the probability of loss—because it has carefully analyzed and measured past experience. It knows what this experience has been, not only for all buildings, but for all private homes, apartment houses, business blocks, schools, and for all the various building classifications. It knows this past experience not only for apartment houses generally, but for brick apartment houses, concrete and steel apartment houses, wooden frame apartment houses, and so on. You

cannot fool the insurance companies about what has happened in the past. They have spent millions and millions of dollars to record and analyze this past experience scientifically. They do not *guess*; they *know*. And in addition to this knowledge, they realize that the future will be similar to the past, differing only to the extent that new factors have entered the situation—as when a new type of building material is invented and used, or when a new system of fire protection is developed, or when the moral hazard becomes greater temporarily because of depressed business. Where new factors have to be considered, the insurance company makes a conservative allowance in judging the future by the past.

Why has not the investor, faced with a similar problem of appraising risks, long ago tried this system of measuring and applying past experience to his problem along the same lines that have been essential for the success of insurance companies in the handling of their risks? This question might imply that the insurance business has always been conducted on this scientific basis. But it has not.

#### THE BEGINNINGS OF "UNDERWRITING"

Insurance was originally little more than gambling. Many of the branches of insurance other than life probably had their origin as businesses in the old English tavern known as Lloyd's where wealthy men were accustomed to gather to get news about the arrival and departure of ships. One day a ship-



owner got the idea that he might safeguard himself against the financial loss resulting from the sinking of his ship by persuading some of these wealthy men to bet him that the ship would return safely while he, in effect, bet them that it would not. Of course, he would have to put up his portion of the bet, but being sporting gentlemen, they would probably give him heavy odds. This shipowner then got a sheet of paper and wrote thereon that the men who signed it agreed to pay the shipowner a certain sum of money—a sum in total equal to the value of the ship and cargo—should the vessel be lost at sea. This paper was posted or passed about and various frequenters of Lloyd's signed it, stating the amount for which each was willing to be responsible. When one of these men signed the paper, it was said that he was "underwriting" the loss; that is, writing his name under the contract by which he agreed to make good any financial loss to the owner.

In the early days of insurance, these frequenters of Lloyd's had no elaborate experience tables to guide them such as the modern insurance company has. They had merely a personal knowledge of the various vessels in the harbor. Each insurer decided for himself whether the vessel was seaworthy; then each man made a guess as to what the weather was likely to be, influenced perhaps by twinges of rheumatism, or whether squirrels were gathering nuts early that autumn. If a man considered the premium—that is, the sum the shipowner was willing to pay—low, he might nevertheless underwrite the risk if he thought

the vessel seaworthy, and if he expected good weather. If he judged these factors otherwise, he would not underwrite the risk unless he got a higher premium.

Originally insurance underwriters endeavored to estimate the risks submitted to them by involved reasoning based upon their own personal experiences and prejudices, or by complicated mathematical processes with little bearing on any experience. Insurance underwriting was then a gambler's game.

#### UTILIZING PAST EXPERIENCE

During this formative period, when every one was entitled to his own ideas on insurance and popular theories were more dependent upon the dominating personality of the advocate than upon the soundness of his reasoning, some enterprising insurance underwriter one day conceived the idea that if he knew what had happened in the past, he could estimate the risk of loss on similar events in the future. At first *this* was only a theory. But when applied in practice, it worked. Furthermore, as time went on, it was the *only* theory that worked consistently in practice and soon it was developed to a point where it was not only a theory, but the accepted basic principle of insurance. Other personal theories or schemes or prejudices were abandoned when their sponsors found they could not compete with the man who quoted a low rate on the basis of past experience. If insurers, swayed by personal prejudice,

quoted a higher rate, they got no business. If they quoted a lower rate, they got all the business, and paid out all their capital in making good their losses.

The insurance business has not always been on a scientific basis. It has reached its present prosperity as a conservative business only through the weeding out of theories and prejudices and personal viewpoints, through the acquisition and utilization of a knowledge of past experience, and through the application of the law of averages.

#### MANY BELIEFS BUT LITTLE KNOWLEDGE

Why, then, has not investment been placed upon a basis of an accurate knowledge of past experience if, in fact, investment like insurance deals in risks, and if the success of insurance has been built upon such a knowledge of the past? The answer is that scientific investment to-day is still in its swaddling clothes. The present-day investor with all his wisdom gained from forecasters, board-room gossip, and balance sheets is little, if any, better equipped for the serious business of investment than those early frequenters of Lloyd's tavern were equipped for the insurance business. Most of us are still investing on the basis of personal theories. We believe, probably because our banker or bond salesman or father has told us, that stocks are "speculative" or that bonds are a "conservative" investment. We believe

that of all bonds, railroad bonds are the safest—or perhaps some other kind. We believe that there is some “fair price” for a given stock, and that for every dollar it has advanced beyond this point, it is bound to decline a dollar at some future date—and probably soon. We have a veritable catechism of beliefs—and little knowledge of fact. In the field of investment, as in the early days of insurance, dominating personality rather than a knowledge of fact has been directing the trend of investment beliefs.

But why is investment still in its infancy at a time when insurance has developed a scientific method of dealing with its risks? Are the same principles not applicable, or has the profitableness of their application been obscured? Let us analyze these two businesses in further detail to determine whether or not we would be justified in applying to investment problems an approach similar to that which has proved successful with insurance underwriting.

#### MINIMIZING RISKS

Both the insurer and the investor are interested in minimizing risks. Peter Policy is an insurer with \$10,000 capital, while Donald Dollar, with the same amount of capital, is an investor. Peter Policy insures buildings, and the total face value of all the insurance he has in force is \$500,000. The average premium is 1 per cent, so Mr. Policy has a yearly gross premium income of \$5,000, for which he has underwritten the loss of an indefinite amount of

capital—something less than the \$500,000 property value he has insured. He does not know his actual losses until the end of the year, but at the beginning of the year he is underwriting the loss of an indefinite amount of capital with a theoretical maximum liability of \$500,000.

Donald Dollar invests all his \$10,000 in a diversified group of bonds and stocks, and at the end of the year shows a net cash income of \$550 and an appreciation of \$200. When Mr. Dollar invested his \$10,000 he underwrote the loss of a similar indefinite amount of capital, but in his case the upper limit was \$10,000 (assuming that he did not purchase any stocks on which there was double liability, such as bank stocks).

What are the business situations of Mr. Policy and Mr. Dollar? Both are concerned with risks, though of different sorts. The insurer is risking the loss of an indefinite sum up to \$500,000, and the investor is risking the loss of and hoping for a gain on his \$10,000 investment. Mr. Policy is paid a definite gross income—his total premiums—in advance, while Mr. Dollar does not know what income he will receive during the year or what change may take place in his principal. Whereas the insurer is bound to suffer some loss on his underwriting, the investor may either gain or lose. Mr. Policy can conservatively assume his risks because he has selected them on a sound basis and is in a position to average losses; he uses the premiums from the many policies under which he suffers no losses to pay



the few losses which occur. Mr. Dollar might also conservatively assume his risk of loss by a sound selection and diversification of securities, in effect an averaging process whereby a possible high return from one security would serve to balance a possible low return or loss on another security. These are the major similarities of the two processes of investment and insurance.

There are, however, several important differences in the practical businesses of insurance and investment underwriting. These differences in the investor's favor have perhaps been primarily responsible for our laxity in applying scientific underwriting principles to investment practice. We first note a pronounced difference in the ratio of the capital employed to the possible liability incurred. Both men employed \$10,000 capital. The insurer assumed a possible liability of \$500,000 (possible but not probable); the investor assumed a possible liability no greater than the amount of his capital, \$10,000. The investor has a 100 per cent cushion of capital which softens the jolt of any fall. The insurer is not so protected. If Peter Policy makes a mistake of  $1\frac{1}{2}$  of 1 per cent in estimating his risks, he is likely to be ruined. Mr. Dollar, expecting to gain 5 per cent, may actually lose 5 per cent of his capital, an error of 10 per cent in his estimation of risk, and still be complacent—for hasn't he \$9,500 still left? Mr. Policy fails within a year on a mistake of less than 1 per cent, because the risks which he assumes are much greater than his capital.

For a fair analogy with the greater risks of the insurer we should have to consider an investor operating on a small margin of something like 2 per cent. In such a case the underwriter of investment risks with \$10,000 of his own money would be assuming the risk of loss on \$500,000 of capital, and his selections would consequently demand much greater skill if he were to survive.

#### PAYMENT FOR RISKS ASSUMED

There is another difference which deserves close attention because of its importance. Peter Policy has received \$5,000 in the form of premiums. But most of the \$5,000 received by him was in payment for the risks expected to mature and the expense involved in selecting and averaging these risks—leaving a small balance as business profit. Underwriting losses of the average successful fire insurance company might normally aggregate 55 per cent, and expenses of administration 40 per cent of total premiums received. If Mr. Policy did as well as the average successful company in a normal year, he might then realize an underwriting profit of 5 per cent of \$5,000, or \$250.<sup>1</sup>

Donald Dollar at the end of the year has collected \$550 income, and has realized a market appreciation of \$200. The \$550 income is not entirely nor chiefly

<sup>1</sup>In the average insurance company the further income through investment of capital, surplus, and the unearned premiums in the company's possession is an important part of total revenue. Investment return is omitted here in order to simplify our problem.

a payment for the risks he has assumed since he could have invested his \$10,000 in high-grade short-term government bonds and received at least \$350 with practically no risk. In other words, the investment income of \$550 might be broken up into two parts: one representing a sort of pure interest or simple rent for the riskless use of the money, and the other a kind of insurance premium for assumption of the risk of loss involved. Thus we see that Mr. Dollar received only \$200 (\$550 minus \$350) as insurance premium for the risks he assumed.

Just as the 100 per cent cushion of capital at risk eases the fall of the investor from success, and he does not realize it, so also a further cushion has the same effect—the cushion of rent. Donald Dollar could get \$350 at any time within the year we were discussing above by lending his \$10,000 with practically no risk. Suppose that as a result of investing his \$10,000, instead of showing a gross income of \$550 for the year, he showed only \$300. He might say to himself that he did not get so much, but still he made “something.” If allowance is made for the rent of his capital, he has really lost \$50. He may not consider that he has lost because at the end of the year has he not the \$10,000 intact and in addition \$300? He does not realize that any person—with brains or without—could have obtained \$350 for the riskless use of that \$10,000, whereas he has assumed risks and received only \$300.

Or, suppose Donald Dollar receives only \$300 at

the end of the year and has lost \$200 on the value of his securities, reducing their market value to \$9,800. He may say to himself, "Well, I made only \$100 this year on that investment," without realizing that in effect he has lost \$250,—\$200 in principal value, and \$50 below the riskless rental rate of capital.

Some of us might refuse to consider the temporary drop in market value and would similarly not include market appreciation in our investment accomplishment unless such loss or gain in market value had been actually realized through sale. Orthodox accounting practice often values securities and other assets at cost or market, whichever is lower, the avowed purpose being to underestimate rather than overestimate their worth.

#### ORTHODOX ACCOUNTING MISLEADS

Such accounting practices have led many investors to feel that there is a substantial difference between "paper profits" and "realized profits" in spite of the fact that for all practical purposes the situations may be identical. That is to say, when Mr. Dollar buys 100 shares of U. S. Steel at 150, sells it at 160, and buys it back again at 160, he has taken a profit of \$1,000 and includes this in his investment accomplishment. If he does not go through the mechanics of sale and repurchase, his profits are only on "paper" and he may refuse to consider them.

Or, take the case of an investor with a weak hold-

ing that has been gradually dropping off in market value. He may have bought 100 shares at 150, and now can realize only 120 for it. He hesitates to sell because he does not want to "take" the loss. Yet if instead of the stock he were in possession of \$12,000 in cash, he would not consider placing it in this stock. In other words, he would much prefer to have \$12,000 in cash than the stock, but will not sell his stock for this amount, because by some vague reasoning he deludes himself into the belief that he does not suffer the loss from the cost price until the security is sold. The loss is there, however, whether he refuses to recognize it or not; the water is over the dam, and his bookkeeping methods or decision to sell can in no way influence the value of his property. If his primary interest is to make up the loss suffered on this stock, the important question to decide is whether this particular stock or some other offers the better opportunity for appreciation.

Any one suspicious that his judgments may be warped by this orthodox accounting attitude toward his investment accomplishment would do well to sell every security on which he has a heavy profit or loss; then with his brokers' checks in hand, decide whether he will buy the stocks he has just sold or others. Payment of the brokers' buying and selling commissions will be a small price to pay for clarifying the issue in his mind and enabling him to make sound judgments.

Market values represent the resultant of the opinions of thousands of investors. Important factors in



the value of individual securities may be neglected in their selling price from time to time, but eventually they are all reflected in the market. Although imperfect, over a period of years actual sale prices are the best index of value that we have.

The life insurance company, ordinarily carrying investments at cost or amortized values, often takes the position that it is not interested in temporary market fluctuations since its liabilities are projected over a long term of years, and so long as investments can be liquidated at book value or above at the times when these liabilities become due, the life insurance company is not concerned with market value or liquidity for the great majority of its investments at any other time. Admitting the soundness of this argument in theory, it still holds true that the market value (the only realizable value from sale) is constantly changing. The fact that the liabilities of life insurance companies are projected so far into the future makes it possible gradually to restore the losses suffered in market value of principal invested in long-term bonds bought in an unfavorable period, through the acceptance for many years thereafter of a return or rental value on the original investment that is below the rate currently obtainable. Contrariwise, long-term bonds bought during a favorable period of high interest rates and carried at book or amortized values result in the distribution of the actual capital appreciation that may take place in a few years over the entire term of the bond in the

form of a higher annual income than is currently obtainable.

#### DANGER LURKS IN THEORETICAL VALUES

From a purely scientific or from a practical business viewpoint, it is dangerous for investors to accept as a measure of past and present experience theoretical values which tend to minimize the important element of risk and speculation involved in all long-term investment contracts. The "book" or "amortization" value plan cannot be advantageously applied in practice. It is a theory that serves primarily to maintain the complacency of institutional investment committees and the confidence of depositors and policyholders. It is noteworthy that practically all institutions basing their operations on this theoretical accounting system are mutual or semi-charitable organizations wherein the management is not fundamentally concerned with actual business profits. A financial statement or report based on theoretical valuations may satisfactorily measure such an institution's investment accomplishment in the minds of most of its constituents, but such practice also severely undermines the incentive to vigilance that is essential to sound investment management.

What is "value" but the currently realizable price that some one is willing and has the ability to pay? Any modification of this definition, such as "amor-

tized value," "book value," "intrinsic value," etc., is nothing more than a theoretical concept that does not exist except in somebody's mind.

These theoretical measures of value were introduced primarily to stabilize reports of investment accomplishment. They were applied to savings bank accounting at a time when an exact measure of existing values would have shown the majority of them insolvent. Such procedure to obscure the fact was probably justifiable when an acute emergency existed. On the other hand, the continuance of this encouragement to neglect the important element of speculation involved in investment by maintaining such a theoretical accounting system after the emergency is passed not only appears unsound, but has invited a dangerous laxity on the part of those entrusted with investment management.

As practical investors, we do not want to camouflage the changing value of our holdings nor shut our eyes to the actual risks involved. We want to know all the dangers, realize all the facts, and then strive to take advantage of them rather than cover them up.

We have found certain similarities and certain differences in our comparison of insurance and investment. Both the insurer and the investor assume risks, and receive varying payments for the assumption of their respective risks; both can make a profitable business out of it by an intelligent selection of their risks and by averaging a number of chances of loss and gain. The insurer's viewpoint is

different from that of the investor in that he is interested solely in the possibility of loss and in keeping his loss ratio low, while the investor is interested in the opportunity for gain as well as a protection against loss to his capital. The insurer assumes the possible risk of loss many times greater than the capital he employs, while the investor's possible losses are confined to the amount of his capital. And finally, a difference is found in the fact that the insurer's payment is for the assumption of risk while the investor's is only partly for the assumption of risk.

Does this comparison of the nature of insurance and investment give us any insight into the reasons why there has developed no scientific approach to the investor's problems such as has been built up by the insurer? Perhaps there is little science of investment today because investors have never been forced to be scientific in order to continue as investors.

#### A FALSE SENSE OF SECURITY

Investors by neglecting to analyze their problems scientifically have been lulled into a false sense of security. They have deceived themselves into interpreting as satisfactory accomplishments investment results which actually are indicative of failure, but a failure which has not been suicidal. The insurance company which tried to exist on theories and prejudices soon suffered losses beyond its capacity to

pay. The investor, quite differently, is encouraged in his theories and prejudices, for these theories and prejudices are profitable to the security merchants and brokers and not so unprofitable as to cause his financial ruin.

Insurance had to become scientific to survive. But careless investment practices have been eased along by our uneconomic system of security distribution, by the 100 per cent margin of capital at risk, and by the cushion of a minimum rent or "pure interest" that the riskless use of capital commands.

Just what allowance should be made in our problem for this last factor, the riskless rental value of capital, we have not yet determined, but we are ready now to examine this element of investment return in greater detail.



### *Chapter III*

## THE CUSHION OF RENT

MONEY, the medium of exchange for our stored-up surplus, may be used either for consumptive or for productive purposes. When capital is consumed, this money is used to purchase the necessities, comforts, and luxuries of life; when employed productively, it may be used for the purchase of labor and materials in the construction of industrial plants, railroads, highways, apartment houses, or whatnot. Money in pocket or in the bank is capital only to the extent that it represents power to buy commodities and services or to command facilities for production. All of us are consumers; most of us are producers. What is more, almost every one of us looks forward to the day when he may consume more or better goods—or may produce on a larger and more important scale. This fundamental human motive to increase consumption and to expand production implies the urgent need for capital if we are to improve our methods of living or are to progress industrially and commercially. We are all anxious to enlarge our command over capital. In fact, we are so eager to increase our surplus wealth and are so dependent on its use that we are willing to pay a rental for that use.

## RENTAL VALUE OF CAPITAL

Because of this eagerness to command surplus wealth and this dependency on it, capital has a certain minimum rental value irrespective of the risk of loss involved in the loan. Even the United States Government, which is probably the safest institution in the world today, cannot use some one else's capital without paying for it. From whom does the government get the capital it uses? From lenders who have more than they wish to consume for the present and lack the ability or inclination to employ it in some productive enterprise themselves.

Capital, as has been said, is merely stored-up surplus, a surplus which had its origin thousands and thousands of years ago when man first laid aside a little store of food for the uncertain morrow or fashioned a crude stone axe. Only a small part of our huge surplus of today is of our own building. The capital of the world is a giant surplus which has been created by sustained productive effort and self-denial throughout the centuries during which civilization was advancing. This growth of surplus may be likened to the gathering of an enormous rolling snowball which never melts. Every generation adds its contribution to the store of the world's capital as every turn of the snowball adds another layer to its bulk. The contribution of one generation with all the contributions of countless preceding generations is the enlarged surplus with which the new genera-

tion starts. The expansion of capital makes available new facilities and conveniences; it is, to use another figure, a powerful lever which gradually elevates civilization—and elevates it at a constantly increasing rate.

#### SURPLUS TRANSFERRED, NOT WASTED

The accretion and constant accumulation of the world's capital is demonstrable on the theory that it is well-nigh impossible to destroy it, except through some catastrophe or decay from lack of use. Of course there is the factor of obsolescence, but wealth becomes obsolete only as something better replaces it. The very existence of obsolescence connotes progress and increasing efficiency of our productive capital.

Often we hear of a wealthy youth "wasting" his inheritance, but usually this ne'er-do-well's capital has not been "wasted" in the sense that it has been destroyed or lost to the world. He has no more destroyed or consumed the huge stored-up wealth left to him than have the beneficiaries of his carelessness and inefficiency created it. Title passes from one to another, but even the most extravagant and wasteful of men seldom destroys or consumes the major part of a large fortune.

Whether a man is left a fortune or wins it from his fellows through exercise of the shrewd trading genius that frequently measures material success in modern industrial enterprise, he should recognize

that although he may have added a wee bit to the world's net surplus by his activities, a large part of his rapidly realized wealth probably represents nothing more than a subtle transfer of the accumulated surplus of past generations, from the hands of those less qualified to administer it into his own.

We must not imagine that title to wealth passes to or remains in the hands of the individuals that have been most instrumental in the creation of it. It is the man who demonstrates his ability to administer newly created wealth most effectively that the competitive code of modern business eventually enables to come into possession of it. Usually students of pure science and frequently the creative genius of the practical inventor receive small reward for their patient and intelligent efforts. The largest share of the contribution to the world's surplus wealth resulting from preliminary work of the pure scientist and the inventor's genius and devotion to his problem, usually finds itself, in short order, in possession of the modern business man. Our economic system is not particularly adjusted to reward individuals according to their contributions to the world's surplus. The competitive system in the long run places in control of capital those who have demonstrated their ability to use it most effectively in supplying not necessarily what the mass of people most need from an enlightened viewpoint, but what they, with their ignorance and prejudices, think they want. However unalluring or unmoral it may appear in theory, this plan of economy has thus far worked out better

in practice than any other in promoting our national growth and increasing the world's surplus wealth.

#### RISK AND RENT CONFUSED IN INVESTMENT

Capital is always transferable—passing from one owner to another. It is always anxiously sought because its possession spells power to the possessor. So anxiously is it sought that people are always willing to pay a rental value for it even though there is no risk connected with its use. For example, the National Credit Office estimates that the annual loss to banks and others who purchased prime commercial paper in recent years has been something less than  $\frac{1}{100}$  of 1 per cent—a risk almost negligible. Yet during this period the interest rate on prime commercial paper has averaged something more than 4 per cent. An investment in prime commercial paper is practically riskless, yet the capital so invested commands a substantial return or rental rate. Since the demand for capital always exceeds the supply, the possessor of capital can always command some rental value when his capital is lent even with the minimum of risk.

But every use of capital invariably involves *some* risk of loss, be it ever so slight. As investors, we consciously assume certain risks in order to obtain the promised or expected return—a return above the pure interest rate or riskless rental value of capital. However, when we start out as investors we should



realize that we are not "starting from scratch"; we are starting with a big handicap in our favor. We have \$10,000 in the bank and decide to invest it in the hope that we will realize a return of 7 per cent or 10 per cent. But in our race to achieve a net return of 7 or 10 per cent for the year we are not starting at zero, for we could theoretically earn the riskless rental rate on the capital without subjecting it to any risk. In other words, if we could receive, let us say,  $3\frac{1}{2}$  per cent for our money under any circumstances and without risk, we are really favored by a  $3\frac{1}{2}$  point handicap in our race to reach a 7 or 10 point return by the end of the year, or slightly more than a 35 point handicap on a 10-year race.

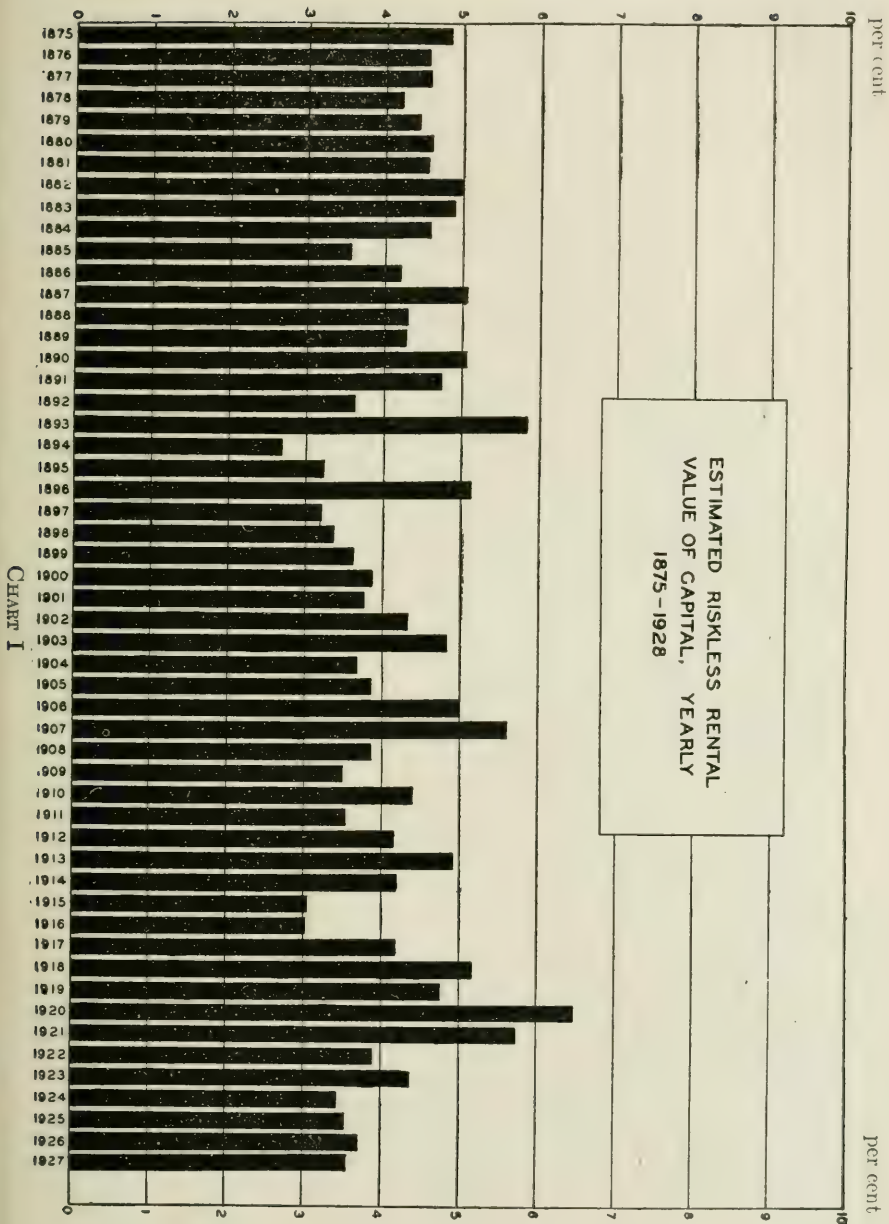
If we are to apply the methods successfully employed by insurance companies to the analysis of investment risks, our first task is to determine upon a scientific measure of investment accomplishment. And in working out such a plan we must take into consideration the fact that capital would command some rental rate if lent without risk; that investment accomplishment is in reality the achievement of a return above this riskless rental value of capital.

If we were on a canoe trip in the Northern woods and were paddling vigorously downstream, we should not measure our skill and power as canoeists by the distance traveled in an hour. If it were a fast running stream, swollen by recent freshets, the water itself might have a current moving at the rate of five miles an hour. So, if we paddled downstream and found that we had traveled nine miles at the end of

an hour we would not be justified in boasting of our prowess as canoeists to the extent of telling our friends that we had paddled at the rate of nine miles an hour. Part of our progress would be accounted for in the flow of the stream. With a current of five miles an hour, our actual accomplishment as canoeists was only four miles an hour. Or, in other words, if we had merely sat still in the canoe in mid-stream, we would have traveled five miles an hour.

Just as it would have been unfair for us to measure our skill as canoeists in terms of the total distance traveled in an hour, so also it would be unfair for us to measure our skill as investors in terms of total return on investment. And just as we would have moved five miles in an hour without any effort in the current of the stream, so also do we receive some return for the use of money irrespective of the investment skill employed. And finally, just as it is necessary to subtract the speed of the current of the stream from our total of miles traveled in an hour in order to measure our skill as canoeists, it is necessary for us to subtract the rental value which money commands without risk from our total investment return to find our net investment accomplishment, or to measure our investment skill.

In calculating net investment accomplishment, then, our first problem is the measurement of the riskless rental value of money so that we may deduct this amount from our total investment return. That is, we are trying to measure the varying thicknesses



of the cushion of riskless rental value of capital at different periods of time.

#### ESTIMATE OF THE RISKLESS RENTAL RATE

A study has been made of this subject, the details of which are presented in the Appendix. Realizing that no use of money is absolutely riskless we tried to get as close to the riskless use of money in our daily affairs as possible with a view to measuring the rate which such money commanded. There was of course the investment in prime commercial paper with its extremely low loss ratio of 1/100 of 1 per cent. In spite of the small risk on this type of investment, the average purchaser of commercial paper associates with it some risk. Then there are short-term United States Government bonds in which we have what may be termed a minimum of risk, but because such bonds are tax exempt there is an advantage in owning them, so the return is probably slightly below the actual riskless rental rate. As a result of our study, we concluded that the riskless rental rate generally fluctuated somewhere between the rate on prime commercial paper and the rate on short-term U. S. Government bonds. We have accordingly constructed Chart I shown on page 65, which sets forth our conception of the fluctuation of the riskless rental rate during the last fifty-odd years.

Over this long period it would appear that the riskless rental rate has been pretty well confined be-

tween 3 and 5 per cent. In one year, 1920, it rose above 6 per cent and in another year, 1894, it fell below 3 per cent. But generally speaking, it has held pretty well between 3 and 5 per cent.

#### SLUMBERING ON THE "CUSHION" OF RENT

An investor who has not realized in any year a net appreciation and income from his investments totaling approximately the amounts illustrated on this riskless rental chart for that year has fallen behind. If over a period of years his accomplishment has not averaged as much as the average riskless rental value of capital, he cannot be credited with skill as an investor. The efforts expended to realize more from his investments than the riskless rental value of his capital have been distinctly unproductive, since the greater risks assumed have resulted in a net accomplishment of less than would have been realized with his funds in such a relatively riskless medium as short-term government bonds.

It is essential that we realize at the outset the importance of the riskless rental value of money; otherwise, this "cushion" may have the effect of lulling us into a sense of self-satisfaction, whereas an unobstructed view of the facts would alarm us and stimulate us to a conscious effort to make investing pay.

The situation of the saving banks and life insurance companies in 1920 (when most of them were technically insolvent) well illustrates the extent of



losses that may be unconsciously suffered from slumbering too long and complacently on this cushion of riskless rent. It will be remembered that these institutions took on heavy commitments of long-term high-grade bonds in the early 1900's fearing that interest rates were tending to a permanent rate that would be substantially lower. (See Appendix for reproductions of letters written in 1899 on the trend of interest rates by the country's most prominent financiers of that time.) As a result of gradually increasing interest rates rather than the lower rate anticipated, these high-grade long-term bonds had by 1920 depreciated between 20 and 30 per cent in market value. During the long period of rising interest rates, however, most of these institutions refused to become disturbed by the constantly declining market value of their bonds which they continued to carry on their financial statements at "cost" or "amortized value." They complacently accepted a  $3\frac{1}{2}$  per cent return on these "book" values in 1920 when 6 per cent was currently available. Now if they go on for twenty or thirty years more, or until maturity of these bonds, accepting  $3\frac{1}{2}$  per cent when an average of  $4\frac{1}{2}$  or 5 per cent is currently available in the market, they will have gradually made up the losses in principal incurred by their unfortunate purchases. But the losses will have been made up by cutting down on the riskless rental income to which they would have been entitled had they not speculated so disastrously on the trend of future interest

rates. The cushion of rent is absorbing their errors, and they do not notice it.

But as practical investors interested in a scientific approach to our problem, and in actual accomplishment rather than complacency, we must recognize the cushion of rent and its effect. In measuring our investment accomplishment or skill, we should deduct from our total return each year the riskless rental value of the money invested.

## *Chapter IV*

### MEASUREMENT OF INVESTMENT ACCOMPLISHMENT

WE HAVE found that the problem of the modern investor is exceedingly complex, and in some respects is similar to that of the insurance company in that he must appraise and select investment risks just as the insurance companies appraise and select their life, fire, and casualty risks. However, we have noted two important factors not present in insurance underwriting that tend to obscure the inherent risks in investment underwriting; namely, a cushion of 100 per cent capital and a cushion of riskless rent which capital can command without the exercise of investment skill.

The fact that both investment and insurance deal with the assumption of risks shows a basic similarity, which suggests that we may, to some extent, apply insurance principles to investment. The first step in this process would be an analysis of past investment experience to learn the inherent characteristics or extent of risk involved in various types of securities. But the problem of measuring investment experience is not a simple one. Let us see first how the insurance company measures its experience; perhaps we can use a similar plan for measuring investment experience.

TABLE I  
AMERICAN EXPERIENCE MORTALITY TABLE

Age	Number Living	Number Dying	Annual Risk of Death	Age	Number Living	Number Dying	Annual Risk of Death
10	100,000	749	.749%	53	66,797	1,091	1.633%
11	99,251	746	.752	54	65,706	1,143	1.740
12	98,505	743	.754	55	64,563	1,199	1.857
13	97,762	740	.757	56	63,364	1,260	1.988
14	97,022	737	.760	57	62,104	1,325	2.133
15	96,285	735	.763	58	60,779	1,394	2.294
16	95,550	732	.766	59	59,385	1,468	2.472
17	94,818	729	.769	60	57,917	1,546	2.669
18	94,089	727	.773	61	56,371	1,628	2.888
19	93,362	725	.776	62	54,743	1,713	3.129
20	92,637	723	.780	63	53,030	1,800	3.394
21	91,914	722	.785	64	51,230	1,889	3.687
22	91,192	721	.791	65	49,341	1,980	4.013
23	90,471	720	.796	66	47,361	2,070	4.371
24	89,751	719	.801	67	45,291	2,158	4.765
25	89,032	718	.806	68	43,133	2,243	5.200
26	88,314	718	.813	69	40,890	2,321	5.676
27	87,596	718	.820	70	38,569	2,391	6.199
28	86,878	718	.826	71	36,178	2,448	6.766
29	86,160	719	.834	72	33,730	2,487	7.373
30	85,441	720	.843	73	31,243	2,505	8.018
31	84,721	721	.851	74	28,738	2,501	8.703
32	84,000	723	.861	75	26,237	2,476	9.437
33	83,277	726	.872	76	23,761	2,431	10.231
34	82,551	729	.883	77	21,330	2,369	11.106
35	81,822	732	.895	78	18,961	2,291	12.083
36	81,090	737	.909	79	16,670	2,196	13.173
37	80,353	742	.923	80	14,474	2,091	14.447
38	79,611	749	.941	81	12,383	1,964	15.860
39	78,862	756	.959	82	10,419	1,816	17.430
40	78,106	765	.979	83	8,603	1,648	19.156
41	77,341	774	1.001	84	6,955	1,470	21.136
42	76,567	785	1.025	85	5,485	1,292	23.555
43	75,782	797	1.052	86	4,193	1,114	26.568
44	74,985	812	1.083	87	3,079	933	30.302
45	74,173	828	1.116	88	2,146	744	34.669
46	73,345	848	1.156	89	1,402	555	39.586
47	72,497	870	1.200	90	847	385	45.454
48	71,627	896	1.251	91	462	246	53.247
49	70,731	927	1.311	92	216	137	63.426
50	69,804	962	1.378	93	79	58	73.418
51	68,842	1,001	1.454	94	21	18	85.714
52	67,841	1,044	1.539	95	3	3	100.000

The insurance company measures its experience mathematically by calculating what it terms a probability factor or ratio. The mortality table which is the heart of the life insurance business is compiled by recording the course of a given number of lives from birth until death. The commonly used American Experience Table, reproduced on page 71, as Table I, is the history of 100,000 lives beginning at age 10. At age 25, for example, there were 89,032 persons out of the original 100,000 still living. During the year, at the age of 25, 718 persons died, leaving 88,314 at age 26. By dividing the number of persons dying during the year by the number living at the beginning of the year, that is  $718 \div 89,032$  (not 100,000), the actuaries arrived at a ratio of approximately 8/10 of 1 per cent, which is the probability of dying within a year for a person 25 years of age. The same procedure is followed for every year until all of the hundred thousand people have died. The mortality ratio is the insurance company's measure of the experience. This is their yardstick by which the risks of dying are measured.

What we want is some yardstick to measure investment accomplishment—a measuring device which we can lay alongside of actual investment experience and say this is equal to so much, just as the carpenter lays his footrule alongside a wall a number of times and says this is so many feet long, using the foot as a unit of measurement. We are trying to measure scientifically what has happened to investments in the past.



## A SAMPLE CASE

Let us assume that we invest \$5,000 in bonds, holding our securities for one year, and that our investment experience for this year is as follows:

Total capital at beginning of year—\$5,000	
Interest received during the year	\$ 275
Price paid to us when all the bonds were sold at the end of the year.....	5,200
	<hr/>
Total.....	\$5,475
Less: Original capital invested at beginning of year...	5,000
	<hr/>
Total investment return.....	\$ 475
Less: Riskless rental value of capital at risk (assuming a rate of $3\frac{1}{2}\%$ ).....	175
	<hr/>

Net investment accomplishment—the sum directly attributable to the assumption of investment risks..... \$ 300

By the exercise of a certain degree of skill, or through good fortune, we have received \$300 in payment for assuming certain risks. This is the measure of our investment accomplishment for the year.

We have assumed that the securities were sold at the end of the year for \$5,200. Now suppose that we turn right around and buy the same securities which we have just sold, paying for them exactly the sum we have received, namely \$5,200. During the second year we might receive exactly the same amount of interest, \$275, and at the end of the year realize exactly the same appreciation, \$200; in other words we sell out our bonds at the end of the second year

for \$5,400. To simplify the example, let us assume further that there is no change in the riskless rental rate on money which remains constant during the second year at  $3\frac{1}{2}$  per cent. The results of our investment experience might seem at first glance to be identical this second year with what they were the first year, for in both years we received \$275 in interest and sold at a price \$200 higher than our purchase price. But have we done relatively so well the second year as we did the first? The second year's investment experience may be summarized as follows:

Total capital at beginning of the year—\$5,200	
Interest received during the year.....	\$ 275
Price paid to us when all the bonds were sold at the end of the year.....	5,400
	<hr/>
Total.....	\$5,675
Less: Original capital invested at the beginning of the year.....	5,200
	<hr/>
Total investment return.....	\$ 475
Less: Riskless rental value of money at risk ( $3\frac{1}{2}\%$ rate still continuing but on \$5,200 instead of \$5,000) ..	182
	<hr/>
Net investment accomplishment—the sum directly at- tributable to the assumption of investment risks. . .	\$ 293

The two years' results compare as follows:

	1st year	2nd year
Capital at risk.....	\$5,000	\$5,200
Total return—interest and appreciation....	475	475
Riskless rental.....	175	182
Net accomplishment.....	300	293

Looking at the dollar figures we find that net accomplishment was \$7 less for the second year than for the first.

The riskless rental value of the capital at risk was greater in dollars although the same in percentage ( $3\frac{1}{2}$  per cent). The greater amount of capital at risk the second year involves a larger rental charge in dollars against our total return. With this greater sum at risk in the second year our total return must be greater to maintain the same relative accomplishment with the capital at our disposal.

Now, if we convert our dollar return into terms of percentages of the capital invested at the beginning of each year—just as insurance actuaries in measuring the rate of mortality for the original experience table of 100,000 lives divided the number dying each year by the number living at the beginning of that year—we then arrive at a closer measurement of investment accomplishment. By doing this our last table becomes:

	1st year		2nd year	
	dollars	per cent	dollars	per cent
Capital at risk.....	\$5,000	100%	\$5,200	100%
Total return—interest and appreciation.....	475	9.50	475	9.13
Riskless rental.....	175	3.50	182	3.50
Net accomplishment.....	300	6.00	293	5.63

This table indicates that our rate of accomplishment for the second year was relatively .37 per cent less than it was for the first year. The 5.63 per cent

net accomplishment in the second year was only 94 per cent as good as our first year's record. We cannot measure investment accomplishment in terms of dollars alone. We must use as our yardstick of investment accomplishment some index which expresses the relationship of the total return including both cash income and appreciation (or depreciation) to the amount of capital at risk.

#### THE MARKET VALUE AT RISK

The amount of capital at risk during any specified period is the market value of the securities at the beginning of that period, since this is the amount we would have to pay for the securities if purchased at that time, or if we should decide to forego the hazards of speculative investment, it is the amount we could realize and place in a practically riskless medium such as United States Treasury Certificates. In the two years' experience just analyzed, it was assumed that we sold the securities at the end of the first year and then immediately purchased the same securities for the same price at which they had just been sold. As a result of this sale and repurchase, our index of *total return* dropped from 9.50 per cent in the first year to 9.13 per cent in the second year, and of *net investment accomplishment* from 6 per cent to 5.63 per cent. But if we had not gone through this formality we might have deceived ourselves by calculating our accomplishment as investors for the second year on the incorrect assumption that we had

only \$5,000 at risk. We must use market value at the beginning of each year, not original purchase price, in computing an annual index of investment accomplishment.

Our index of investment results must, then, be in terms of yearly percentages—the ratio of the return from our investment operations to the amount of capital at risk at the beginning of the year. And then to calculate our measure of net accomplishment from underwriting these investment risks—to measure our skill as investment underwriters—we must subtract from the percentage of total return the current riskless rental rate.

#### AN EXPERIMENTAL PROGRAM

A few simple examples taken from the investment history of Mr. Donald Dollar may aid in clarifying this plan for measuring investment accomplishment. Early in his career, in an endeavor to solve some of the more practical aspects of profitable investing, Mr. Dollar set out upon an experimental program that extended over a period of eight years. The first year he invested \$10,000 in ten long-term bonds, each bond running for about 50 years and paying interest at  $5\frac{1}{2}$  per cent. During this first year, the riskless rental rate on capital averaged  $4\frac{1}{2}$  per cent. One of the companies whose bonds Mr. Dollar held suffered a decline in earnings during the year, and as a result of its weakened credit standing the bond in this company depreciated until at the end of the year it



showed a \$50 loss in market value. All the other bonds remained practically stable, leaving at the end of the year a market value for his fund of \$9,950.

From his capital of \$10,000 Mr. Dollar has received a total cash income of \$550 during the year. Out of this we must first take the riskless rental value of the capital at risk, or \$450. This leaves \$100, or 1 per cent on his original capital, which may be termed the investment underwriting premium. But from this \$100 we must subtract the \$50 loss in principal value during the year, leaving \$50 as net underwriting profit for his assumption of investment risks. Calculated on the basis of the original \$10,000, this is equal to  $\frac{1}{2}$  of 1 per cent, which is our index of investment accomplishment. To summarize this instance we may tabulate it as follows:

#### FIRST YEAR

##### *Long-Term Bonds under Constant Rate of Interest*

Capital at risk—\$10,000		
Total income received @ $5\frac{1}{2}\%$ .....	\$550	5.5%
Minus estimated riskless rental value of capital @ $4\frac{1}{2}\%$ .....	— 450	— 4.5%
	<hr/>	
Underwriting premium for risks assumed....	\$100	1.0%
Plus or minus net change in principal value.	— 50	— .5%
	<hr/>	
Net profit for the year.....	\$ 50	.5%

On his first year's investment in long-term bonds Mr. Dollar showed an investment accomplishment of  $\frac{1}{2}$  per cent. He now sells his securities and buys at the beginning of the second year a new lot of

long-term  $5\frac{1}{2}$  per cent bonds at par for which he pays \$10,000. During the second year, the riskless rental value of money decreased to  $4\frac{1}{4}$  per cent, and his long-term bonds with the  $5\frac{1}{2}$  per cent coupon reflecting this lower interest rate appreciated in market value, so that at the end of the second year they were quoted at \$10,400. Applying the same method of measurement for the second year, we find that his underwriting premium is \$125, or 1.25 per cent, on the \$10,000 invested at the beginning of the year. To this underwriting premium we must add the market appreciation of \$400, giving a total underwriting profit of \$525 or an index of investment accomplishment of 5.25 per cent. In summary form, the second year's experience may be analyzed as follows:

## SECOND YEAR

*Long-Term Bonds with Declining Interest Rates*

Total capital at risk—\$10,000		
Total income received @ $5\frac{1}{2}\%$ .....	\$550	5.50%
Minus riskless rental value of capital @ $4\frac{1}{4}\%$	— 425	— 4.25%
<hr/>		
Underwriting premium for risk assumed....	\$125	1.25%
Plus or minus net change in principal value	400	4.00%
<hr/>		
Net profit for the year.....	\$525	5.25%

Now let us follow Mr. Dollar's bond investments through a third year at the beginning of which he again buys at par \$10,000 worth of long-term  $5\frac{1}{2}$  per cent bonds of fair security but not quite so high grade as his previous holdings. The riskless rental rate of capital shows a pronounced rise and averages

for this third year 5 per cent. This general increase in the level of interest rates and a decline in the credit rating of several of his bonds caused a depreciation in the principal value of his holdings to the extent of \$500. In this year Mr. Dollar's index of investment accomplishment becomes a minus quantity of 4.50 per cent representing a net loss of \$450. This analysis of the component parts of his investment return shows that Mr. Dollar is much worse off than if he had stopped investing at the beginning of the year and merely left his money in the bank or placed it in highly liquid short-term loans on which the market was willing to pay 5 per cent without the lender assuming practically any risk of loss in principal or income. To summarize Mr. Dollar's third year of investment:

### THIRD YEAR

#### *Long-Term Bonds with Rising Interest Rates*

Total capital at risk—\$10,000		
Total income received @ $5\frac{1}{2}\%$ . . . . .	\$550	5.5%
Minus riskless rental value of capital @ 5% . .	— 500	— 5.0%
<hr/>		
Underwriting premium for risks assumed . . .	\$ 50	.5%
Plus or minus net change in principal value	— 500	— 5.0%
<hr/>		
Net profit for the year	— \$450	— 4.5%

Mr. Dollar then reasoned that since he had lost so heavily on his last year's investment of bonds, which he had considered the "safest" of investments, he might as well try an investment in stocks in spite of the fact that he had always considered they were

"risky." So he invested \$10,000 in stocks at the beginning of each year for three years with the following results. During the first year of his investment in stocks, dividends amounted to \$620 and his fund showed an appreciation of \$500 in market value. Throughout this year the riskless rental rate on money averaged  $4\frac{1}{2}$  per cent and he showed a net investment accomplishment of \$670 or, according to our index, 6.7 per cent. The summary shows:

## FOURTH YEAR

*Industrial Stocks During Year of Mild Prosperity*

Total capital at risk—\$10,000		
Total income received . . . . .	\$620	6.2%
Minus riskless rental value of capital @ $4\frac{1}{2}$ %	— 450	— 4.5%
<hr/>		
Underwriting premium for risks assumed . . .	\$170	1.7%
Plus or minus net change in principal value .	500	5.0%
<hr/>		
Net profit for the year . . . . .	\$670	6.7%

During the previous year, Mr. Dollar had become somewhat envious of a neighbor who, he learned, had been receiving dividend checks more than twice as large as his own on approximately the same initial investment. He discovered that his neighbor's investments were confined principally to several small mining companies that were in active production. And so, at the beginning of the fifth year, he placed \$10,000 in a group of similar stocks. Industrial conditions continued to be prosperous and although Mr. Dollar was greatly pleased at the increase in cash dividends that he received over the previous year,

he was a little disappointed to find that at the end of the year he was forced to sell these high-income mining shares at prices somewhat below their cost. He was disturbed about this because he realized that during this period most stocks had been going up. His accomplishment for the fifth year might be summarized as follows:

## FIFTH YEAR

*Stocks with Depleting Assets*

Total capital at risk—\$10,000

Total income received (including depletion of

capital value of properties) . . . . .	\$1400	14.0%
Minus riskless rental value of capital @ $4\frac{1}{2}\%$	— 450	— 4.5%

Underwriting premium for risks assumed . . . .	\$ 950	9.5%
--	--------	------

Plus or minus net change in principal value . .	— 200	— 2.0%
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Net profit for the year . . . . .	\$ 750	7.5%
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Mr. Dollar thus came to realize that the large dividends he had received from these high-income stocks were really a partial return of his principal and as he regularly spent all his dividends as income he became fearful that a continuance of the policy of concentrating in this type of security might eventually make serious inroads on his principal. He also noticed that during the year when the market value of his high-income shares had gone down, low-income shares such as those of chain stores, banks, and insurance companies had shown a much greater appreciation than other stocks. He therefore determined to conserve his principal in the sixth year by concen-



trating in a diversified group of the lowest-income stocks he could find. General prosperity of the country continued to favor Mr. Dollar's investment operations and in the sixth year, while he received only \$220 in cash dividends on this \$10,000 investment, the market value of his shares at the end of the year had appreciated to \$11,020. His sixth year's accomplishment is summarized below:

## SIXTH YEAR

*Low-Income Stocks*

Total capital at risk—\$10,000		
Total income received . . . . .	\$220	2.2%
Minus riskless rental value @ 4.5% . . . . .	— 450	— 4.5%
	<hr/>	
Underwriting premium for risks assumed . . .	—\$230	— 2.3%
Plus or minus net change in principal value . .	1020	10.2%
	<hr/>	
Net profit for the year . . . . .	\$ 790	7.9%

Mr. Dollar was now satisfied that his sixth year's investment in "low"-income stocks had offset the depleting effect on his principal of the previous year's holdings in "high"-income stocks, and in his seventh year he included both types in his purchases. After three years of practically uninterrupted prosperity, however, business men and investors became apprehensive that expansion might have gone too far and credit have been unduly extended. There was a general wave of caution and retrenchment in sympathy with which the stock market suffered a reaction. As a result of this liquidation money became more plentiful and the riskless rental value of capital

dropped to 4 per cent. But the cash dividend disbursements on Mr. Dollar's high-grade stocks were not greatly affected and he received a total of \$540 during the year. The market value of his holdings declined to \$9,000 and his net result for the year was a loss of \$860, or a net accomplishment of minus 8.60 per cent. The summary shows:

## SEVENTH YEAR

*Industrial Stocks During Year of Business Depression*

Total capital invested—\$10,000

Total income received . . . . .	\$540	5.4%
Minus riskless rental value of capital @ 4%	— 400	— 4.0%
<hr/>		
Underwriting premium for risks assumed . .	\$140	1.4%
Plus or minus net change in principal value.	— 1000	— 10.0%
<hr/>		
Net profit for the year . . . . .	— \$860	— 8.6%

Mr. Dollar's confidence in his ability as an investor was again disturbed by the unfortunate results of the seventh year. He did not feel that he could complacently continue the plan he had followed in the last few years of concentrating his capital in common stocks which he had observed could fall as violently and as far as they could rise. After mature deliberation, he finally decided not to keep his capital entirely in stocks nor yet entirely in bonds, so in his eighth year he bought both stocks and bonds in equal amounts. We follow his fortunes for the eighth year with close attention because he has now reached the stage of a normal average investor own-

ing both stocks and bonds. For the eighth year his results were \$275 in bond interest and \$300 in cash dividends on his stocks. The bonds declined slightly in market value to \$4,900 but his stocks had appreciated at the end of the year to \$5,700. The riskless rental rate on money tightened again as business activities were resumed and averaged for the year  $4\frac{1}{2}$  per cent. Mr. Dollar's net investment accomplishment from both bonds and stocks for this year was 7.25 per cent, arrived at as shown on page 86:

### *The Investment Experience Summarized*

If we want to review in a short space the history of Mr. Dollar's eight years' experimental investment program, we may summarize the results in Table II, page 87. The last column in this table gives us a concise picture of how Mr. Dollar has fared each year in his investment activities. This table, however, has been compiled on the assumption that Mr. Dollar started out each year with a fresh \$10,000 as illustrated in these eight yearly records. This is, of course, contrary to usual investment practice for the ordinary investor does not sell out his securities every year and then subtract the amount of profits or add an amount to make up any deficit so as to start each succeeding year with exactly the same amount of capital. The usual procedure is for the investor to leave all appreciation in his investments and spend the income.

## EIGHTH YEAR

*Bonds and Stocks During Recovery from Depression*

Mr. Dollar's capital at risk at beginning  
of year

	Bonds	\$5,000	}	
	Stocks	5,000		
Bonds:	\$5,000			
Bond interest .....	\$275	5.50%		
Less: Riskless rental rate on \$5,000 capital .....	- 225	- 4.50%		
Total underwriting premium .....	\$ 50	1.00%		
Less: Depreciation in principal value .	- 100	- 2.00%		
Net profit for year .....	- \$ 50	- 1.00%		
Stocks:	\$5,000			
Cash dividends .....	\$300	6.00%		
Less: Riskless rental rate on \$5,000 capital .....	- 225	- 4.50%		
Total underwriting premium .....	\$ 75	1.50%		
Plus: Appreciation in principal value .	700	14.00%		
Net profit for year .....	\$775	15.50%		
Bonds and Stocks: \$10,000				
Interest and dividends .....	\$575	5.75%		
Less: Riskless rental rate on \$10,000 capital .....	- 450	- 4.50%		
Underwriting premium for risks assumed	\$125	1.25%		
Plus or minus net change in principal value .....	\$600	6.00%		
Net profit for year .....	\$725	7.25%		

TABLE II  
MR. DOLLAR'S INVESTMENT ACCOMPLISHMENT

Year	Capital	Income		Appreciation		Total		Riskless Rental Val.		Index of Accomplishment	
		\$	%	\$	%	\$	%	\$	%	\$	%
1	10,000	550	5.50	- 50	- .5	500	5.00	450	4.50	50	.50
2	10,000	550	5.50	400	4.0	950	9.50	425	4.25	525	5.25
3	10,000	550	5.50	- 500	- 5.0	50	.50	500	5.00	- 450	- 4.50
4	10,000	620	6.20	500	5.0	1120	11.20	450	4.50	670	6.70
5	10,000	1400	14.00	- 200	- 2.0	1200	12.00	450	4.50	750	7.50
6	10,000	220	2.20	1020	10.2	1240	12.40	450	4.50	790	7.90
7	10,000	540	5.40	- 1000	- 10.0	- 460	- 4.60	400	4.00	- 860	- 8.60
8	5,000	275	5.50	- 100	- 2.0	175	3.50	450	4.50	- 50	- 1.00
8	5,000	300	6.00	700	14.0	1000	20.00	450	4.50	875	15.50
(Total.....)	10,000	575	5.75	600	6.0	1175	11.75	450	4.50	725	7.25
Total.....		5005		770		5775		3575		2200	



*Cumulative Returns*

Suppose, however, that Mr. Dollar, instead of starting out each year afresh, had decided to let his investments accumulate; in addition, assume that he sought an accurate measure of his investment skill and that therefore he withdrew from his total return each year only an amount equivalent to the riskless rental value of the capital at risk at the beginning of that year. Or, in other words, let us assume that he started out the first year with \$10,000 and then added to this sum each year the amount of his income and appreciation less the riskless rental value of the capital at risk. What would have been the result? Table III, page 89, shows how this fund would have built up over the 8-year period. This table shows that as a result of the first year's investment there remained a profit of \$50 out of the total appreciation and income above the riskless rental value of the \$10,000 at risk. Mr. Dollar added this \$50 to the \$10,000 which he had at the beginning of the year and started the second year with \$10,050, and during this year Mr. Dollar had a total income and appreciation of  $9\frac{1}{2}$  per cent while the riskless rental rate was  $4\frac{1}{4}$  per cent, leaving a net accomplishment of  $5\frac{1}{4}$  per cent. So for the second year Mr. Dollar would have shown a net investment accomplishment of approximately \$528, or  $5\frac{1}{4}$  per cent on \$10,050. The third year would start with a capital of \$10,578 (the capital at the beginning of the second year,

TABLE III  
CUMULATIVE OR ANNUALLY COMPOUNDED NET ACCOMPLISHMENTS FROM  
MR. DOLLAR'S INVESTMENTS

Year	Amount of Prin- cipal	Income		Appreciation		Riskless Rental Rate		Net Investment Accomplishment	
		\$	%	\$	%	\$	%	\$	%
1.....	10,000	550	5.50	- 50	- .50	450	4.50	50	.50
2.....	10,050	553	5.50	402	4.00	427	4.25	528	5.25
3.....	10,578	582	5.50	- 529	- 5.00	529	5.00	- 476	- 4.50
4.....	10,102	626	6.20	505	5.00	455	4.50	676	6.70
5.....	10,778	1509	14.00	- 216	- 2.00	485	4.50	808	7.50
6.....	11,586	255	2.20	1182	10.20	521	4.50	916	7.90
7.....	12,502	675	5.40	- 1250	- 10.00	498	4.00	- 1075	- 8.60
8.....	11,427	657	5.75	687	6.00	514	4.50	830	7.25
9.....	12,257								

\$10,050, plus the net investment accomplishment above the riskless rental rate for the third year, \$528). But during the third year Mr. Dollar suffered a loss on his bonds so that his net accomplishment was a minus  $4\frac{1}{2}$  per cent. He would thus have lost  $4\frac{1}{2}$  per cent, not on \$10,000 but on \$10,578, or a sum of \$476. So at the end of the third year we subtract this \$476 from the \$10,578, leaving \$10,102 capital at risk for the beginning of the fourth year. Following this procedure throughout the eight years, we find that Mr. Dollar's original \$10,000 of capital would have grown to \$12,257, and his riskless rental return increased from \$450 to \$514. In other words, by reinvesting each year his net profit above the riskless rental value of capital at risk he would have shown a total growth of principal of \$2,257 for the whole period and have withdrawn \$3,879 as income.

We have found that it is impossible to measure investment accomplishment in terms of either income or appreciation alone. The examples in Mr. Dollar's experience were made artificially simple in order to bring out as clearly as possible our method of computing the component parts of investment return. Over a long period and particularly with high income securities there is another important factor involved which would be particularly pronounced in the investment in the mining shares carried in the fifth year. In this year, Mr. Dollar was receiving back part of his principal in the form of income and that part of principal returned to him could no

longer produce an income unless it was reinvested. On the other hand, in the case of extremely low-income stocks, such as those held in the sixth year, principal would be substantially increased each year at the expense of income. In his sixth year's investment in "low"-income stocks Mr. Dollar in reality *paid* a premium of 2.3 per cent (2.2 per cent income received less 4.5 per cent riskless rental value of capital) for the opportunity to participate in the anticipated growth in principal value.

#### HIGH AND LOW INCOME TYPES

Because we require a high current income it is not necessary to omit low-income stocks from our holdings simply on account of the small share of earnings that the management chooses to pay out. We do not worry about the inroads on current income that would be made if we subscribed to all rights issued by a high-income stock like American Telephone. We simply sell our rights, which in reality represent part of our participation in the business. Likewise, we need not be confused or inconvenienced by small dividend payments of a company reinvesting most of its earnings for expansion; we can simply liquidate the portion of reinvested earnings that we choose by the sale of part of our holdings.

On the other hand, many investors are prejudiced in favor of discount bonds and low-income stocks because of the mechanical reinvestment of income that this type of security promotes. Also the ma-

jority of recent studies of investment accomplishment over a period of years through investment in bank, insurance, chain store, and other typical low-income stocks have been somewhat exaggerated by the superficial statistical methods employed. The accomplishments from such stocks are ordinarily computed in the following manner:

Market value per share Jan. 1, 1928 . . . . .	\$205
Less purchase price per share Jan. 1, 1908 . . . . .	100
	<hr/>
Appreciation in market value . . . . .	\$105
Value of rights, stock div., etc., issued during 20 years . . . . .	270
Total cash dividends per share . . . . .	80
	<hr/>
Total return for the period . . . . .	\$455
Average annual return ( $455 \div 20$ ) . . . . .	\$ 22.75
Percentage annual return on cost . . . . .	22.75%

To illustrate the unfairness of this method we may consider the hypothetical case of a company which earned each year for a period of 20 years 10 per cent on the capital it had employed in the business. We will further assume that all reinvestments of undistributed earnings in the company are promptly reflected in the market value of the shares.

By following Method A—see Table IV, page 93—this company would have paid out most of its earnings in dividends to its stockholders and obtained the needed cash for expansion through issuance of additional stock.

By following Method B, it would have paid out



TABLE IV  
COMPARISON OF HIGH AND LOW INCOME STOCKS

METHOD A (HIGH INCOME)					METHOD B (LOW INCOME)				
Years	Mkt. Val.	Reinv.	Div. Inc.	Tot. return Inc. & Apprec.	Mkt. Val.	Reinv.	Div. Inc.	Tot. return Inc. & Apprec.	
1	\$100.00	\$ 2.00	\$ 8.00	10%	\$100.00	\$ 8.00	\$ 2.00	10%	
2	102.00	2.04	8.16	10%	108.00	8.64	2.16	10%	
3	104.04	2.08	8.32	10%	116.64	9.33	2.33	10%	
4	106.12	2.12	8.49	10%	125.97	10.08	2.52	10%	
5	108.24	2.16	8.66	10%	136.05	10.88	2.72	10%	
6	110.40	2.21	8.83	10%	146.93	11.75	2.94	10%	
7	112.61	2.25	9.01	10%	158.68	12.69	3.17	10%	
8	114.86	2.30	9.19	10%	171.37	13.72	3.43	10%	
9	117.16	2.34	9.37	10%	185.09	14.82	3.70	10%	
10	119.50	2.39	9.56	10%	199.91	16.00	4.00	10%	
11	121.89	2.44	9.75	10%	215.91	17.29	4.32	10%	
12	124.33	2.49	9.95	10%	233.20	18.66	4.67	10%	
13	126.82	2.54	10.15	10%	251.86	20.15	5.04	10%	
14	129.36	2.59	10.35	10%	272.01	21.77	5.44	10%	
15	131.95	2.64	10.56	10%	293.78	23.51	5.88	10%	
16	134.59	2.69	10.77	10%	317.29	25.39	6.35	10%	
17	137.28	2.75	10.98	10%	342.68	27.42	6.86	10%	
18	140.03	2.80	11.20	10%	370.10	29.62	7.40	10%	
19	142.83	2.86	11.43	10%	399.72	31.99	8.00	10%	
20	145.69	2.91	11.66	10%	431.71	34.54	8.64	10%	
21	148.60				466.25				
\$48.60 \$194.39					\$366.25 \$91.57				
Market Value end of 20th year.....					\$148.60				
Original Cost.....					100.00				
Total Market Appreciation.....					\$ 48.60				
Total Cash Dividends received.....					194.39				
Total dividends and appreciation....					\$242.99				
$\frac{\$242.99}{20 \text{ years}} = \$12.15 \text{ average annual return}$					$\frac{\$457.82}{20 \text{ years}} = \$22.89 \text{ average annual return}$				
$\frac{\$12.15 \text{ (ave. an. return)}}{\$100 \text{ (prin. at begin. of per.)}} = 12.15\%, \text{ an exag-}$					$\frac{\$22.89 \text{ (ave. annual return)}}{\$100 \text{ (prin. at begin. of per.)}} = 22.89\%,$				
gerated index of annual return (actual return 10% a year)					an exaggerated index of annual return (actual return 10% a year)				

only a small part of earnings to its stockholders and taken all the needed cash for expansion out of current earnings.

In each case, the business of the company was

identically the same, the only difference being the method employed in obtaining cash for expansion. Since the amount of new money used could, in the case of the high-income stock, have been supplied directly by the stockholders out of the dividends paid, and since these stockholders were privileged to supply this cash through subscription to additional stock, it is apparent that they *could* have obtained exactly the same total return by one method as the other.

Computed according to the superficial method frequently employed, however, it is made to appear that through Method B the investor obtained an average annual return of 22.89 per cent, whereas through Method A it was 12.15 per cent. In both cases, however, we know that the investor would have currently obtained a return of exactly 10 per cent a year. The compounding effect of an 8 per cent reinvestment in one case as against 2 per cent in the other accounts for the different showing in total income and appreciation at the end of the 20 years. The advantage of compulsory reinvesting through ownership of low-income securities may be of practical importance in certain cases, but before determining upon the advisability of such procedure we should know what can be accomplished through ownership of the high-income security if all excess income is voluntarily reinvested.<sup>1</sup>

<sup>1</sup> We should not overlook the probability that those companies withholding the largest portion of earnings are likely to be engaged in businesses undergoing rapid growth and hence offering greater opportunity for ultimate profit.

For purposes of a scientific comparative analysis of the experience in various types of securities, both income and appreciation or depreciation in principal values must be regularly compounded—at least once a year.

## *Chapter V*

### INVESTMENT EXPERIENCE OF THE LEADING FIRE INSURANCE COMPANIES

Now that we have a scientific plan for measuring investment accomplishment, we are in a position to analyze the experience of the past in an endeavor to obtain a practical working knowledge of the actual relationships that have existed between different types of securities.

In order to apply to the field of investment the kind of actuarial studies that were found essential for successful insurance underwriting, we must first determine upon a satisfactory method for selecting samples on which our interpretations of past experience are to be based. In the original American Experience Table of Mortality, 100,000 representative lives were selected and their history was carefully recorded until all had died. To develop a representative Table of Investment Experience that will be useful to-day, however, we are faced with the difficult problem of selecting our samples from hindsight, after the experience has taken place, or of undertaking the immense task of including in our tables practically all securities of current investment importance throughout the period.

REPRESENTATIVE SELECTION DEPEND-  
ENT UPON CURRENT KNOWLEDGE  
AND EXPERIENCE

It is surprising how quickly men of affairs, who have actively lived through the past quarter of the century and have been interested in all of the important business and financial changes that have taken place, fail to recollect even approximately the actual relationships that existed in the past. We become adjusted to new conditions quickly, and past relationships just as quickly fade from memory. It is probably with some difficulty that the investors and financiers of 1899 now living can recollect the almost complete unanimity of opinion with respect to a continued decline in interest rates to a permanently lower level that was expressed by our leaders in finance at that time.<sup>1</sup> And unquestionably, the great majority of our younger generation of investment students, who criticise the action of the many financial institutions that concentrated so heavily in long-term bonds in the early 1900's when interest rates were at their lowest points, would themselves have followed approximately the same procedure had they been called upon to act in the light of the scant knowledge and experience available at that time.

A choice of sample stocks or bonds of the leading companies that have had a continuous existence

<sup>1</sup>Fortunately, we have a written record of 70 of these opinions by leading financiers as given in letters written to the Equitable Life Assurance Society in this year. They are reproduced on pages 269 to 300 in the Appendix.



for the last quarter century would result in an experience table of *successful survivors*. Many companies that have not survived, however, were flourishing and in general popular favor a few years ago. As a practical matter it appears quite impossible for even the most imaginative student to place himself in an environment colored by the prejudices that existed in earlier years, and from this standpoint make a selection of the then currently available investments such as an average intelligent man of that time would have considered representative and healthy investment risks.

INVESTMENT EXPERIENCE OF INSUR-  
ANCE COMPANIES NOT SUBJECT TO  
HINDSIGHT PREJUDICE

An experience table composed of samples selected from hindsight would be of little value as a basis for present investment judgment because in practice we can never select investments with a foreordained knowledge of what is going to happen to them. An experience table of investment results, to be of practical value, should be composed of representative groups of samples such as the average intelligent investor could have purchased currently in each classification, not the ones he would have picked if he had known what the experience was going to be.

After considering a number of methods for selecting such representative and unprejudiced groups of samples, we finally concluded that the investment

records of our leading fire insurance companies provided one of the most satisfactory fields for practical study of past investment experience. The experience of these fire insurance companies is particularly significant because the managements or investment committees had an unusually broad knowledge of investment matters, and the securities they carried from time to time were for the most part, in their judgment, a diversification of good healthy risks; and their selections were not seriously affected by burdensome legal restrictions. Then, too, we have available the annual detailed records that have been maintained for a long period of years—essential data that it is practically impossible to get for other investment funds. We could not get all of the facts, but we have been able to get most of the essential information covering the last two decades.

#### F U N C T I O N S O F F I R E I N S U R A N C E C O M P A N I E S

Before analyzing in detail the investment experience of these fire insurance companies, it may be significant for us to learn the relative importance of the two functions of insurance underwriting and investment management in terms of business profits over a period of years. Profits from each of these functions represent payments for the assumption of risk, but risks of different kinds. Investment gains, or losses, result from the assumption of investment risks as discussed in previous chapters, while insur-

ance underwriting gains, or losses, result from the assumption of fire risks. To compare the business profits from the two functions of investment and insurance underwriting, however, we must relate the return in each case to some common base.

We have used as the base on which to measure this annual accomplishment from underwriting and investment the total admitted assets carried by each company, but we recognize that some of these assets are employed solely for underwriting purposes and do not produce any investment income; and some of the investments carried are probably of little or no practical assistance for the underwriting end of the business. Whether capital is used for some commercial undertaking or strictly for investment purposes, however, we should charge those to whom that capital is entrusted with a fair rental value before calculating any profits. But we should not charge them double the rental value on the capital employed because it is serving two distinct functions. Opinions naturally will vary as to what part of the rental value of total admitted assets should be charged to the underwriting department and what part to the investment department. After considering the important factors in this situation, we finally adopted the plan of charging half the rental value to the underwriting department and half to the investment department. This may not be precisely the division that should be made, and the division would vary between companies; but in a general way it will serve our purposes.

per cent

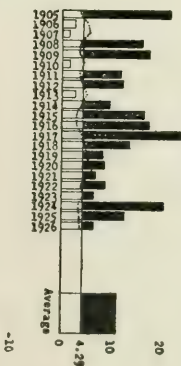
COMPANY X

per cent

UNDERWRITING ACCOMPLISHMENT

INVESTMENT ACCOMPLISHMENT

TOTAL ACCOMPLISHMENT

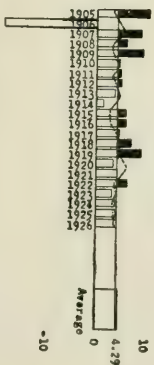


COMPANY Y

UNDERWRITING ACCOMPLISHMENT

INVESTMENT ACCOMPLISHMENT

TOTAL ACCOMPLISHMENT

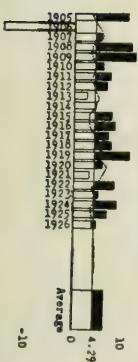


AVERAGE OF 25 CO'S

UNDERWRITING ACCOMPLISHMENT

INVESTMENT ACCOMPLISHMENT

TOTAL ACCOMPLISHMENT



UNDERWRITING AND INVESTMENT  
ACCOMPLISHMENTS

We found it possible to obtain sufficiently detailed information for this comparison only as far back as 1905, and the period covered is from 1905 to 1927. Our estimate of the average riskless rental value of capital for this period figures out at 4.29 per cent, and we have therefore charged the underwriting department of each company with 2.14 per cent and the investment department with a like amount. Above this 2.14 per cent in each case we have what might be accepted as a fair estimate of business profits.

Chart II on the preceding page shows the records of two of the 25 largest fire insurance companies and the average of all 25.<sup>2</sup>

Company X has had a very exceptional underwriting record. In some years the underwriting profit amounted almost to 20 per cent of total admitted assets. The only year in which it showed a loss was 1926, and throughout the entire period its average annual underwriting accomplishment was 6.71 per cent of total admitted assets; or, deducting 2.14 per cent rental for this capital, we have an average annual profit from underwriting of 4.57 per cent. From investment we have an average annual gross return of 4.57 per cent on total admitted assets, or a business profit, above the 2.14 rental value, of 2.43 per cent. The last chart of Company X shows

<sup>2</sup> A more complete explanation of this study is taken up in the Appendix, page 303.



the total percentage from underwriting and investment combined to total admitted assets; the average annual gross return was 11.28 per cent. Deducting from this the 4.29 per cent riskless rental value of the total admitted assets employed in both underwriting and investment leaves an average annual net business profit of 6.99 per cent.

In Company Y we have a less favorable record. Average annual underwriting accomplishment appears to have been only about  $\frac{3}{4}$  of 1 per cent of total admitted assets; or, deducting from this the average annual rental value assessed against the underwriting department of 2.14 per cent, we find an average annual business *loss* from underwriting by this company of about 1.40 per cent. From investments Company Y shows an average annual gross return of 3.98 per cent. Deducting from this the 2.14 per cent rental value assessed against the investment department, leaves this company with an average annual business profit from investment operations of 1.84 per cent. Underwriting and investment accomplishments combined show an average annual gross return of 4.73 per cent, or a true business profit from total operations of less than  $\frac{1}{2}$  of 1 per cent after deducting the average riskless rental value of total admitted assets of 4.29 per cent.

Company X and Company Y are two extreme cases. The record that is of most interest to us is the average of all 25 companies, which is shown at the bottom of page 101. The average of all 25 companies shows an average annual underwriting accom-

plishment of only 1.97 per cent, which is .17 per cent less than the rental value that we have considered fair to assess against this department for its use of the capital. Average annual return from investment operations was 4.29 per cent, representing a business profit of 2.15 per cent above the rental charge that we have assessed against the investment department. Total accomplishment averages 6.26 per cent a year, or not quite 2 per cent above the rental value of total admitted assets to both departments. Our final deduction from this chart, then, is that for the last 22 years the 25 largest fire insurance companies have on the average lost money from their underwriting operations and have made money from their investment operations. At least it seems fair to conclude that profits accruing to the average fire insurance company have been realized from investment operations. Company X, shown in this chart, is the only one of the 25 that has shown a greater return from insurance underwriting than from investments, but this company's underwriting methods have been quite different from those of any other company.

#### INVESTMENT POLICIES OF THE LEADING FIRE INSURANCE COMPANIES

Now that we have observed the importance of investment operations to the success of the average fire insurance company, let us dig into the experience of these 25 largest companies and find out where

their investment profits have come from. By reference to the experience tables of Underwriting and Investment Results in the Appendix, pages 303 to 316, it will be found that the company realizing the largest average annual return from investments showed, from this source, 6.37 per cent, while the company least successful in its investment operations averaged only 3.28 per cent. What are the reasons for the greater profits of the successful company—or the lower profits of the company that was not so successful?

If we find that the most successful was a large company and the least successful a small company, there might be some indication that investment success was partially attributable to the size of the company. Or, if one company concentrated on one type of security and the other company on another type of security, we might conclude that the success was due to the judgment or fortune of the most successful company in its selection of the type of security on which it concentrated.

A number of factors contribute to the success or failure of any investment policy and it may be impossible to isolate the precise reason for any particular result. It does seem reasonable, however, that the general success of an investment policy may be dependent largely on the types of securities carried and the proportions of each type held at various times.

Following out this line of reasoning, we may classify all the invested assets of these insurance com-

panies into six major groups and then inquire how each company distributed its capital over these six groups for every year since 1903.<sup>3</sup> These investments may be grouped as follows:

1. Real Estate
2. Mortgages and Collateral Loans
3. Bank Deposits
4. Bonds
5. Preferred Stocks
6. Common Stocks

Let us first examine for all companies for all years the average proportions carried in the six kinds of investments and the average investment results. The lower chart on page 107 indicates that the average company throughout this period has carried about 22 per cent in common stocks, 8 per cent in preferred stocks, 48 per cent in bonds, 8 per cent in bank deposits, 10 per cent in mortgages and collateral loans, and 4 per cent in real estate. These proportions have resulted in an average annual return throughout the period of 4.70 per cent,<sup>4</sup> or about 4/10 of 1 per cent above the average riskless rental value of capital for this 24-year period.

If we study the lower part of Chart III on page 107 showing the proportions carried by these 25 insurance companies in the different types of investments,

<sup>3</sup> The available information permitted us to carry this study back two years earlier than the preceding one.

<sup>4</sup> The percentage figures representing investment return in all our studies are based upon the *invested* assets from which that return has been derived, except in our comparison of underwriting and investment accomplishment where *total admitted* assets were used in order to have a common base for the comparison.

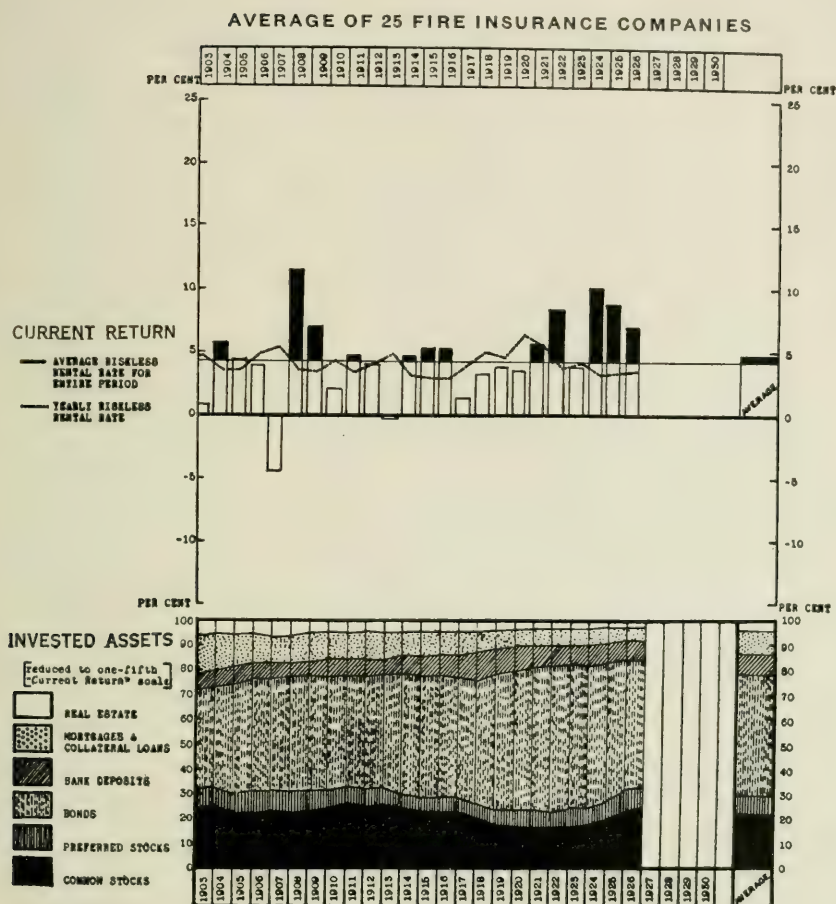


CHART III



we will notice several important trends in the handling or the varying of these proportions. The first significant fact is that there has been a fairly steady decrease in the proportion of investments in real estate. It must be pointed out that, in part, this may be the result of legal restrictions which have been imposed on insurance companies during the period covered. However, at the beginning of the period more than 6 per cent of total investments were carried in real estate, whereas in 1926 the proportion was just above 2 per cent. There has been a similar decrease in the proportions of mortgages and collateral loans, from 15.4 per cent to 5.9 per cent. The proportions in bank deposits and in preferred stocks do not show important changes.

Bond holdings showed the greatest tendency to increase during the period, rising from an average of 39.8 per cent of total investments in 1902 to 51.2 per cent in 1926. The average proportion carried in common stocks did not vary materially at the time of the panic of 1907. Beginning in 1912, however, there started a gradual decline which became more pronounced during the war years of 1917 and 1918. From 1919 up to 1923 the proportion in common stocks was unusually stable. It would appear, accordingly, that the average insurance company did not take advantage of the peak of common stock prices in the latter part of 1919 by selling, nor of the low points in 1921 and 1922 by buying. On the other hand, it does appear that since 1922 insurance companies have on the average increased their pro-

portion of common stocks about 50 per cent. On the whole it would appear that during the last few years the fire insurance companies may have become more fully aware of the suitability as well as profitability of a larger proportion of common stocks. With the passage of years, these variations in the per cent of holdings to total investments provide an interesting commentary on the investment policies of fire insurance companies.

#### WHY SUCH WIDE VARIATIONS IN ACCOMPLISHMENT?

Now that we have a fair idea of the average results from investment and the average proportions carried in the several types of invested assets, let us analyze the varying policies of the two companies making the best and the poorest showings respectively in investment accomplishment. We are trying to find some explanation for the fact that one company is the best company and the other the poorest company so far as investment accomplishment is concerned. If we look at the charts of the proportions carried in the six types of securities, one fact strikes us forcibly. The company making the best showing, Chart IV, had when compared with the average, Chart III, or with the poorest company, Chart V, a large proportion of common stocks. Whereas the average for all companies for the 22 years was 29.2 per cent of total investments in common and preferred stocks as against 49 per cent in bonds, the best



## INSURANCE COMPANY B

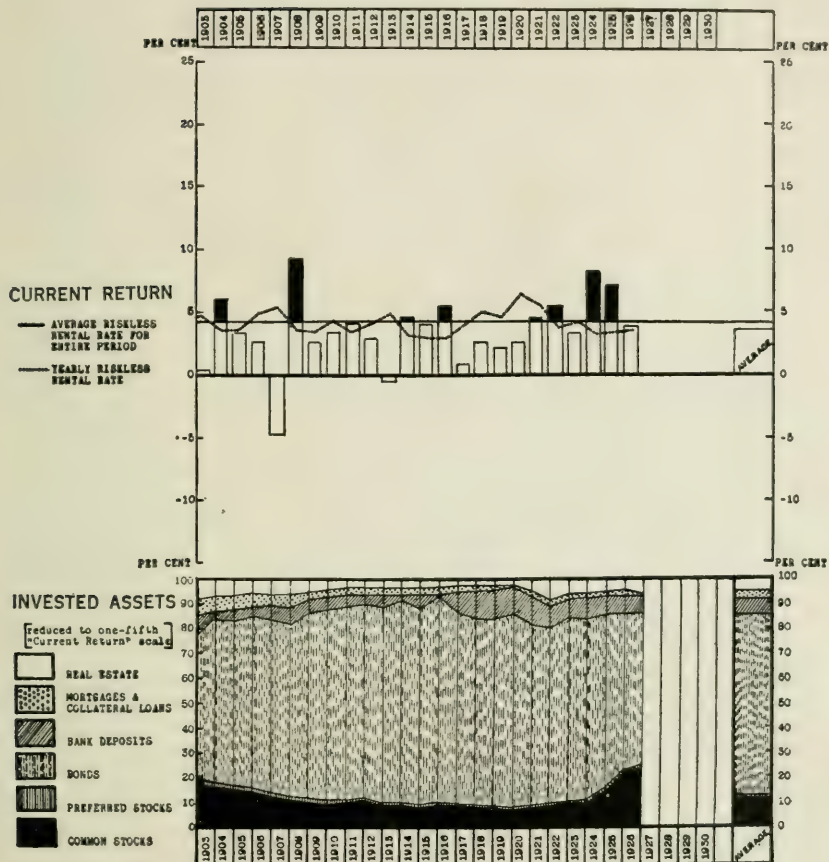


CHART V

company carried an average of 61.2 per cent of all its investments in common and preferred stocks as against 25.1 per cent in bonds; and the poorest company carried only 12.3 per cent in common and preferred stocks as against 73 per cent in bonds. The average proportions carried by the best company and by the poorest company were:

TABLE V

	Best Co.	Poorest Co.
Bonds.....	25.1%	73.0%
Common Stocks.....	38.8	11.2
Preferred Stocks.....	22.4	1.1
Mortgages and Collateral Loans.....	.9	2.7
Bank Deposits.....	8.4	7.0
Real Estate.....	4.4	5.0
	<hr/>	<hr/>
	100.0	100.0

From this comparison it will be seen that the best company and the poorest company followed radically different investment policies. The best company carried its largest proportion in common stocks, about equal proportions in bonds and preferred stocks, and only minor proportions in mortgages, bank deposits, and real estate. On the other hand, the poorest company carried almost three-quarters of its investment in bonds. This comparison suggests in rather striking fashion that during the last quarter century stocks have been substantially more profitable than bonds. But, not wishing to be precipitous in arriving at conclusions, we will regard this only as a clue, leading us to a more intensive com-



parison between bonds and stocks in further analysis.

Before we leave the comparison of the best company and the poorest company, there is one other factor, not made evident in the experience tables or charts, which should be mentioned at this time. It is another difference in the policies pursued by these two companies which may be of some importance. Insurance company investments are generally made under the direction and supervision of an investment committee. Since the best company and the poorest company were of about the same size, it is reasonable to assume that the general average of intelligence and abilities of their respective directors and investment committees was about equal. In each case these committees were doubtless composed of conservative business men capable of exercising sound judgments. It is common knowledge in financial circles, however, that the best company has throughout this period maintained an extensive and efficient investment research department to aid its investment committee. On the other hand, the policy of the poorest company has depended primarily upon the judgment of the investment committee with little assistance in the way of investment research. This is not to say that a research department, in and of itself, is the explanation of why the best company had so much better results from investments than the poorest company, but it is likely that the work of such a department was a major contributing factor in making it possible for

the investment committee of the best company to see all the facts, by supplying the committee with the information which enabled it to exercise its own judgment to the greatest advantage. The successful direction of an investment policy requires two things—first, a knowledge of facts; second, investment ability or judgment in applying this information. The second without the first is likely to show poor results; the two combined are likely to insure good results, not merely in theory but in actual profits.

#### CUMULATIVE INVESTMENT PROFITS

We have been examining the investment policies followed and the results obtained by the most successful and the least successful of the 25 largest fire insurance companies. Chart VI illustrates in more concrete fashion what has been the real difference in dollars between the accomplishments of these two contrasting investment policies. The upper line (Company A) represents the cumulative business profits from investment operations obtained by the most successful company; and the lower line (Company B), the cumulative business profits obtained by the least successful company, over the 24-year period. For each company we have deducted from its annual return the current riskless rental value of the original invested assets. We have charged them with a reasonable rental for their capital, and in Chart VI we have illustrated their net accom-

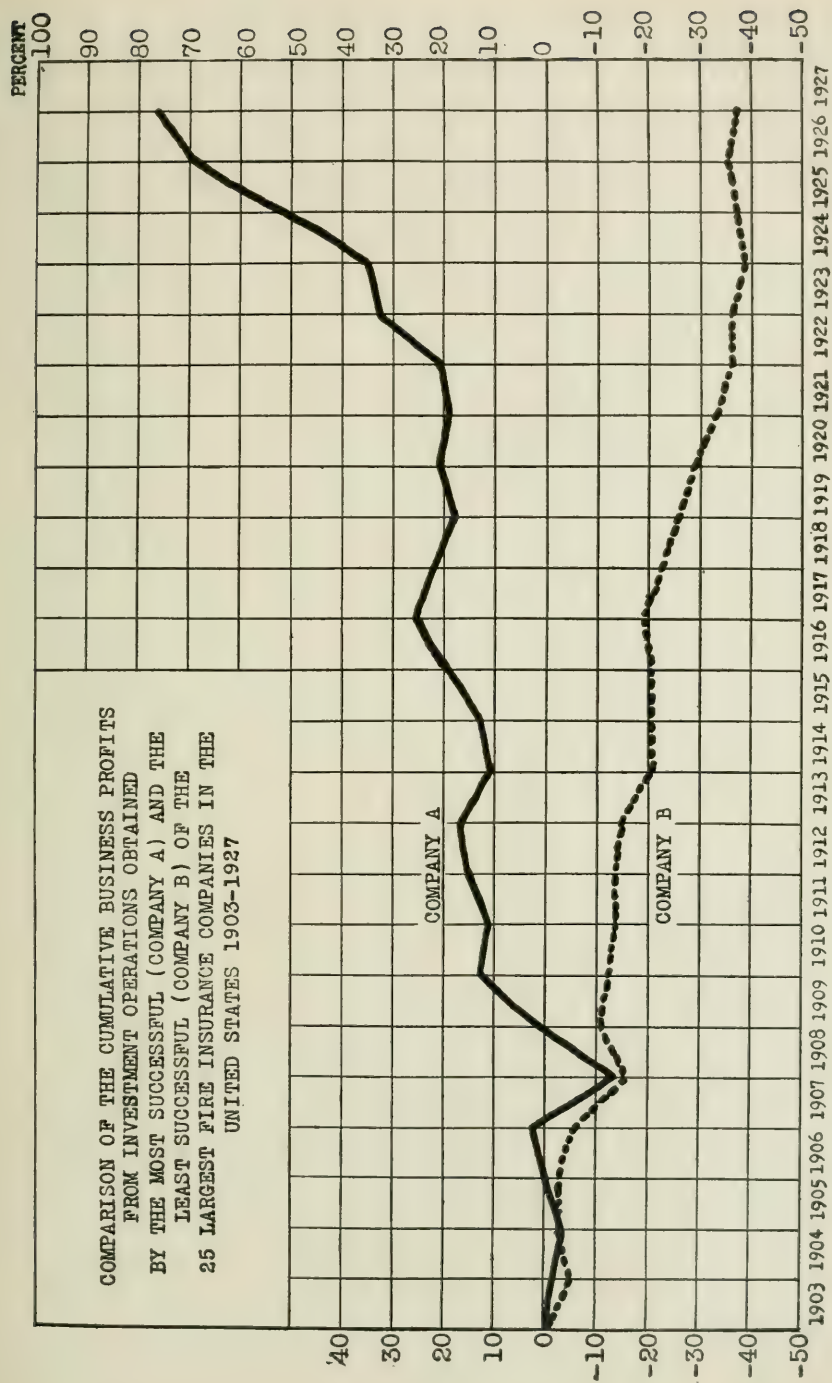


CHART VI

plishments. As a matter of fact, both of these companies in 1903 had approximately \$10,000,000 in invested assets; the best company shows throughout the period an appreciation of about 75 per cent, the poorest company shows a depreciation of about 35 per cent. In other words, on this \$10,000,000 of invested assets in January, 1903, the best company has been able to accumulate real net business profits of \$7,500,000, and the poorest company has accumulated comparable net business losses of \$3,500,000. This demonstrates the potential power for loss or gain from two fundamentally different investment policies.

But what is the most conservative and profitable plan of investment administration? In our comparison of investment policies we discovered that the chief difference in procedure between the best company and the poorest company lay in the relative proportions carried in bonds and stocks. From our analysis thus far it would appear that the best company owed its success primarily to the large proportion of common stocks carried, while the unsatisfactory showing of the poorest company might be attributed to the large proportion carried in bonds. This, however, is only a clue, which demands further inquiry in the form of a more intensive investigation of the comparative results obtained by fire insurance companies in the past from stocks and from bonds, dropping from consideration the other types of investments.

## STOCKS OR BONDS

Fire insurance companies have carried on the average about 80 per cent of all their investments in stocks and bonds. (See Table IX, page 351 in Appendix.) There is, however, no uniformity of distribution as between bonds and stocks for different companies. In two of the 25 companies examined we found that the one realizing the largest investment return held a large proportion of stocks and a small proportion of bonds, while the company making the poorest showing held a large proportion of bonds and a small proportion of stocks. In each case, however, other securities and varying managerial ability entered into the results.

We shall now narrow our investigation by considering the experience of the 25 insurance companies in stocks and bonds only. We shall turn the spotlight of intensive inquiry on the two most important classes of security investment with a view to finding the actual facts of past accomplishment. Chart VII (See Appendix, pages 359 to 368 for details of this study) shows the average investment accomplishments of the 25 largest fire insurance companies from bonds and from stocks from 1908 to 1927. We could not carry this study as far back as the other two because sufficiently detailed records of investment operations were not filed with the insurance commissioners prior to 1908. The vertical bars represent the percentage of annual return from bonds or stocks to the average annual amount carried in each type



of investment. Investment returns were calculated according to the general plan for measuring investment accomplishment that we have discussed in some detail. The average riskless rental value of capital for this 19-year period figures out at 4.23 per cent. The average annual return from bonds was 4.73 per cent, or  $1\frac{1}{2}$  of 1 per cent above the riskless rental value of capital. From stocks, these 25 largest fire insurance companies obtained an average annual return of 7.24 per cent, or about 3 per cent above the riskless rental value of capital. In terms of actual

#### AVERAGE ACCOMPLISHMENTS OF 25 LARGEST FIRE INSURANCE COMPANIES

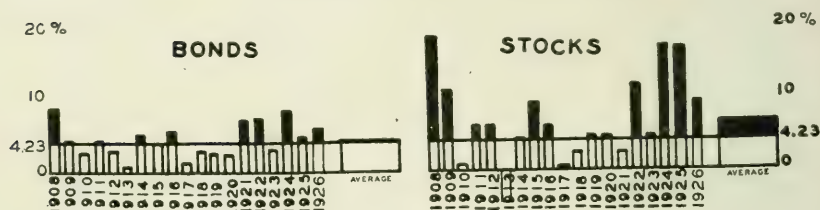
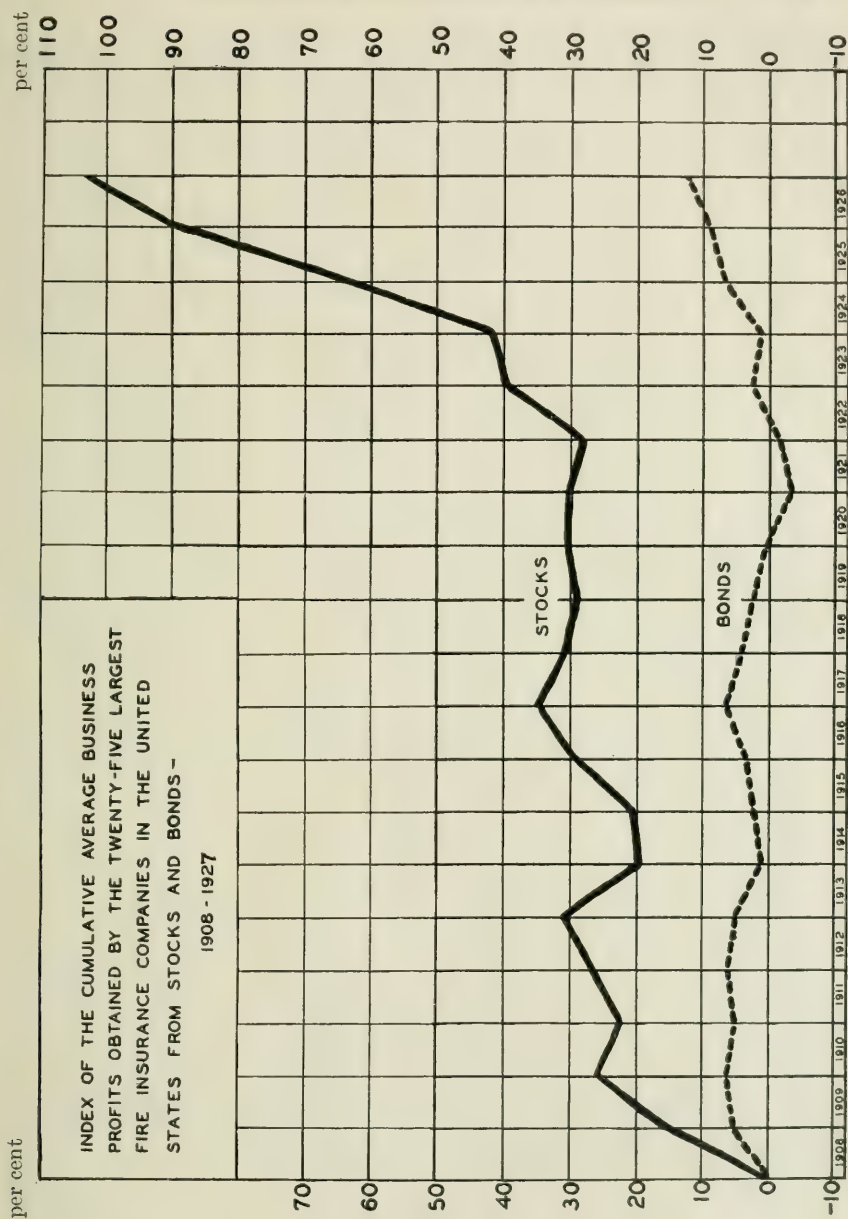


CHART VII

business profits from investment management the stockholders of these companies have obtained an average annual net accomplishment six times greater from their stock investments than they have obtained from their bonds.

#### CUMULATIVE PROFITS FROM BONDS AND STOCKS

To make this story a little more practical, the reader should refer to Chart VIII showing the cumu-



lative average business profits from each type of investment. From this chart it will be observed that the average company, with \$10,000,000 in bonds in 1908 would, after deducting the riskless rental value of this capital throughout the ensuing 19 years, have realized a business profit of about 10 per cent, or \$1,000,000. With the same \$10,000,000 invested in stocks in 1908 this company would have realized a business profit above the rental value of its capital of over 100 per cent, or \$10,000,000. These figures and charts represent facts, actual experiences, as accurately as they can be measured; not just the experience of one or two years, but for a long enough period to get reliable comparisons. By referring to the Appendix it will also be observed that in the case of *every one* of the 25 largest fire insurance companies a greater average annual return was realized from stocks than from bonds.

The success of the investor, like that of an insurance company, depends on an accurate appraisal of the risks taken. Although the risk of loss by fire may be less in the case of brick houses than in the case of wooden houses, an insurance company might lose money insuring brick houses if its premium, while not only being lower than for the premium on wooden houses, was too low for the actual risk involved. From our index of investment accomplishment it would appear that investors in bonds have been buying risks which individually provided greater temporary dollar stability, but for a dangerously low underwriting premium.

It should also be pointed out in this analysis of the investment experience of insurance companies that bonds are shown in a more favorable light than is in accord with facts for the actual investor. There are no serious legal restrictions as to the kind of bonds fire insurance companies are permitted to purchase. So far as bond purchases are concerned the insurance company is about on a par with the average investor.

When it comes to stock purchases, however, there is one important legal restriction in Connecticut to which 6 of the 25 companies here covered have been subject. This restriction prohibits ownership of stock in industrial companies, and has resulted in a concentration in rail stocks which have been less profitable than industrials. Also, in this study the investment records did not permit us to segregate preferred stocks from common stocks. The investment accomplishment from preferred stocks is ordinarily lower than that from common stocks so that the figure shown for the accomplishment of these 25 companies from all stocks is lowered by the effect of the preferred issues which on the average comprised something more than one-quarter of total stocks held. Accordingly, our results are if anything prejudiced against stocks. Our figures are not, then, beyond what an ordinarily prudent investor could have attained by the exercise of reasonable skill and diligence in the management of his investments during this period.

From the standpoint of the experience of the 25

largest fire insurance companies in the United States stocks have proved a far superior form of investment to bonds. In our search for fundamental investment principles, however, we do not want to be too easily satisfied. For this reason, we will not let our investigation stop at this point, but will take up another study in another field on an entirely independent basis.



## *Chapter VI*

### A FURTHER ANALYSIS OF INVESTMENT EXPERIENCE

THE preceding chapter presented a fair portrayal of the investment experience of the leading fire insurance companies in several major classes of investment. The fact, however, that one type of security has shown much better results for the last quarter century than another type does not necessarily mean that this condition will continue. We are interested not only in the experience of different classes of investment over the last quarter century, but also in the fundamental influences or inherent qualities responsible for the pronounced difference in results that we have seen. If we can isolate these fundamental influences or inherent qualities in certain types of investment experience, we must then ask ourselves whether or not they are of a permanent character that will be projected into the future. If we conclude that some of them will be projected into the future, we will want to know to what specific types of investment these permanent influences or inherent qualities are most definitely allied.

For the purpose of measuring investment experience the records of the leading fire insurance companies probably provide the most reliable data that we have to investigate, and these general studies of

investment experience of the 25 largest fire insurance companies may be helpful in the determination of a sound investment program. But the material available in the records of these companies is not sufficiently complete to permit a satisfactory analysis of the fundamental factors or inherent qualities responsible for the varying results from the different classes of investment assets carried. That is to say, these insurance company records show quite conclusively that common stocks have been the most profitable medium of investment during the period studied, but we do not have enough material in these records to determine *why*. Bonds, we know, were profitable during the deflation period after the Civil War until 1900, and from 1921 to the present time, but during the inflation from 1900 to 1920 we have found that they were distinctly unprofitable. Is the favorable investment experience of stocks as compared with bonds during this last quarter century simply the result of an inflationary influence that might be reversed during a long period of declining commodity prices, or are the fundamental causes such that we can rely upon their projection into the future with a consequent continuance of the long-term upward trend of common stock values?

#### REQUIREMENTS FOR RELIABLE EXPERIENCE TABLES

The search for significant material from which it might be possible to analyze the basic factors respon-

sible for changing investment values is narrowed by our insistence upon two fundamental requirements that we consider essential for a practical and reliable investment experience table. These two requirements are:

1. The samples must have been selected *before* the actual experience is known. Many companies and securities that do not exist today, or have been relegated to minor positions, were 15 or 20 years ago among the leaders. The past history of a group that is representative today is hardly more than the experience of the most successful survivors. Such a list would in all probability indicate an accomplishment impossible for the average intelligent man to duplicate by sound current selections and revisions throughout the period.

2. The samples must have been *representative*. There are two main points of view from which the representative character of a group of sample investments may be determined.

- (a). They may be representative of general business and investment conditions *at one point of time* such as the inception of the Investment Experience Table.

- (b). They may be representative of general business and investment conditions *currently* throughout the period, which would, of course, necessitate revisions in accordance with the changing status of specific securities and investment conditions.

Sound investment practice to-day implies aggressive administration. Adequate diversification, the most fundamental of all underwriting and investment principles, cannot be maintained under changing conditions unless specific holdings are revised from time to time. For the purposes of these studies it seems essential therefore that our Investment Experience Tables be *currently* representative.

The investment experience tables that we have compiled of the leading fire insurance companies

comply fully with the first of these two requisites, but are open to some criticism from the viewpoint of investors other than fire insurance companies on the ground that although selected and revised currently they may not be representative of American investments as a whole. The specialized selection of investments by fire insurance companies results from:

- (a) Legal restrictions.
- (b) Special requirements from an underwriting viewpoint or to promote business expansion.
- (c) Continuance of traditional insurance company investment practices established many years ago under distinctly different investment conditions.
- (d) Special taxation problems.

The criticism that the types of securities selected by fire insurance companies are not representative might have been overcome in a large measure if we had found it feasible to isolate their experience in each distinctive type of investment. Thus far we have separated their experience only into the two general classifications of bonds and stocks.

After a careful survey of the material available for more detailed studies in the present records of these insurance companies, and after consideration of the various statistical methods that might be employed for our purposes, we were forced to the conclusion that any results obtained from such detailed analyses would either be very costly (besides causing no little trouble to the insurance companies themselves in supplying the essential supplementary data), or if carried on in a more superficial manner

would involve a margin of error so great as to render the findings unreliable.<sup>1</sup>

We have therefore turned our attention to other fields for the analysis of investment experience where it is possible to obtain more readily the essential data to be used in constructing detailed investment experience tables as well as in analyzing some of the basic factors responsible for the experience.

### THE DOW - JONES AVERAGES

Our final selection as the most suitable material for this analysis was the Dow-Jones industrial and

<sup>1</sup> A plan for such a detailed analysis would divide this investment experience into the following classifications:

1. Real Estate
2. Real Estate Mortgages
3. Collateral Loans
4. Bonds—separated into short (1 to 5 years), medium (5 to 20 years), and long (20 years and over) maturities.
  - (a) Foreign
  - (b) U. S. Government
  - (c) U. S. State and Municipal
  - (d) Railroad
  - (e) Public Utility
  - (f) Industrial
  - (g) Real Estate
5. Preferred and Guaranteed Stocks
  - (a) Railroad
  - (b) Public Utility
  - (c) Industrial
6. Common Stocks
  - (a) Railroad
  - (b) Public Utility
  - (c) Industrial
  - (d) Insurance (divided between general investments and subsidiary holdings)
  - (e) Banks (divided between New York City and all other banks)



railroad stock averages and high-grade rail, second-grade rail, public utility and industrial bond averages. This material met the two specifications that we have required:

1. *Selected before Actual Experience was Known*

It is primarily because the Dow-Jones selections and revisions were made currently throughout a long period of years before the experience was known that this particular choice of samples is more valuable for our purposes than those used in any other stock market average.<sup>2</sup>

2. *Samples were Representative*

As publishers of the leading financial newspaper in the country for many years, the judgment of this organization as to what *currently* constituted the most *representative* securities in each group is probably about as good as could be obtained. As new industries developed to a point that demanded their inclusion in a representative list, the leading companies of these industries were substituted for other companies that had gradually become less representative of general business.

The ready coöperation of Dow-Jones & Company in giving us access to the complete records of their averages as maintained since 1884 has enabled us to construct experience tables based on the actual selections made by them and including the many revisions carried out from time to time throughout the period to keep the list currently representative.

<sup>2</sup> It should be remarked, however, that the Dow-Jones industrial stocks did represent selection by hindsight from December, 1914, to September, 1916. The change from 12 to 20 stocks was not actually made until the latter date, from which time the 20 stocks were projected back to the opening of the Exchange after the War-closing in December, 1914. Since the current selection or revision of samples is of primary importance in the development of this Investment Experience Table, we have used the 12 stocks up to the time when the change to 20 was actually made in 1916 in order to avoid the effect of this hindsight selection.

The corporate form of organization with diversified stock and bond ownership in varied *industrial* enterprises was not well under way in this country until the beginning of the twentieth century.<sup>3</sup> Also, before 1900 the data appeared too fragmentary and the available information not sufficiently reliable to warrant carrying our investment experience tables back of this year.

#### MISLEADING INDEXES OF INVEST- MENT EXPERIENCE

The Dow-Jones stock averages were originally developed as an aid to forecast market movements. The gradual change on the part of stockholders from a speculative to a long-term investment interest has, however, in some instances resulted in the acceptance of these averages as a reliable index of long-term investment experience. Before proceeding to explain the development of our investment experience tables based on the Dow-Jones samples, it may therefore be proper to point out the essential weaknesses of the present averages for our purposes in ob-

<sup>3</sup> The Dow-Jones list of representative stocks in 1884 was:

Chicago & Northwestern	Northern Pacific Pfd.
Delaware, Lackawanna & Western	Union Pacific
Lake Shore	Missouri Pacific
New York Central	Louisville & Nashville
St. Paul	Pacific Mail
	Western Union

It will be noted that all but the last two represented railroad companies and these two performed a general transportation or communication service.

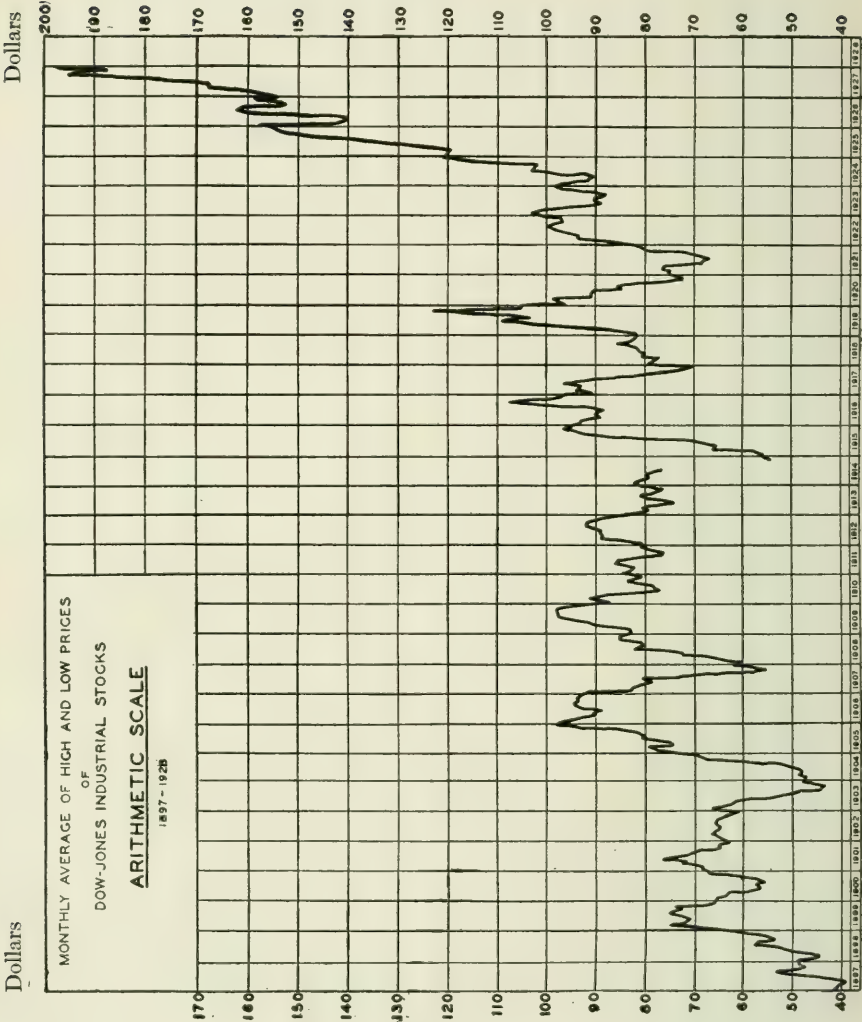


CHART IX

*Chart IX*MONTHLY AVERAGES OF PRICES OF DOW-JONES INDUSTRIAL STOCKS  
PLOTTED ON AN ARITHMETIC SCALE

*Source:* Original record as maintained by Dow-Jones & Company, New York.

Interpreted as an index of investment experience in individual stocks, this chart gives the misleading impression that more than three-quarters of total appreciation for the period has occurred since the depression of 1921. It would also appear from this chart that the holder of these stocks in 1899 would have suffered a loss on his original capital had he sold out 22 years later in 1921.

The appreciation on this chart from 1922 to 1928 measures about twice the distance of the appreciation from the latter part of 1903 to the beginning of 1905, although the percentage change in price level was about the same for each period.

No correction has been made on this chart for the artificial drop of about 20 points in the average in the latter part of 1914 resulting from a drastic change in the individual stocks carried.

Dollars

Dollars

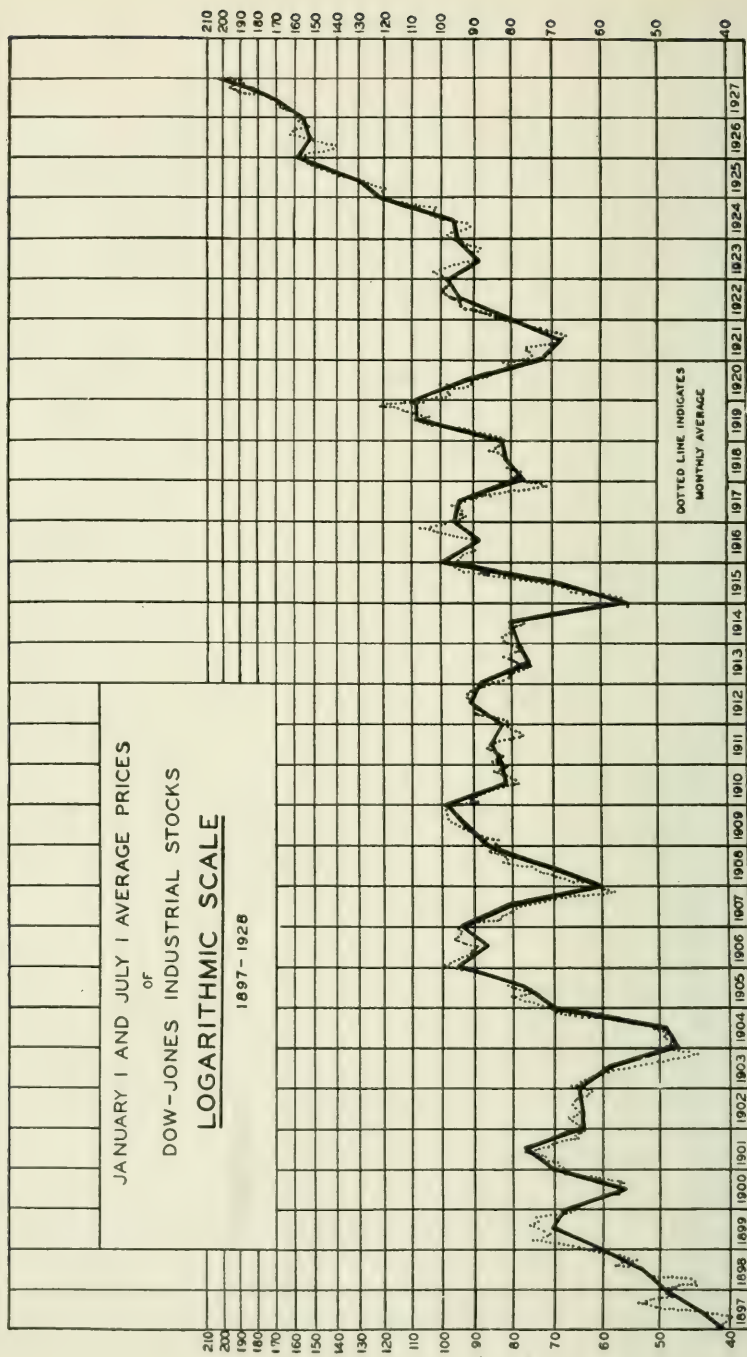


CHART X



*Chart X*JANUARY 1 AND JULY 1 PRICES AND MONTHLY AVERAGE PRICES OF  
DOW-JONES INDUSTRIAL STOCKS

PLOTTED ON A LOGARITHMIC SCALE

*Source:* Original record as maintained by Dow-Jones & Company,  
New York.

This chart represents the same figures as were used in Chart IX, but when portrayed on a logarithmic scale fluctuations in the averages during and after the war appear relatively no more severe than those experienced in previous years.

The heavy line represents the history of the averages at six months' intervals and the dotted line is the same monthly average as shown on an arithmetic scale in Chart IX. No correction has been made for the artificial drop in 1914.

The variation of the monthly from the semiannual record has been superimposed upon our semiannual record of Industrial Stock Values (Chart XI) in order to obtain the more detailed index shown in Chart XX.

taining an unprejudiced record of investment experience.

1. The samples are weighted unequally depending upon wholly non-pertinent data. The daily average is the sum of the market prices of the stocks divided by the number of stocks. However, if one company with a large number of shares outstanding has a market value of 30 and another with fewer shares outstanding a market value of 300, the stock selling at 300 has just 10 times the weight in the average of the stock selling at 30. A selection of representative samples necessitates equal weight to each sample in order to obtain a representative average.

2. No allowance has been made for the issuance of subscription rights or stock dividends which during this period have contributed an important growth in principal value. In some cases adjustments have not been made for stock split-ups.<sup>4</sup>

3. No allowance has been made for the difference in market value of stocks eliminated and those added from time to time, although there has been an attempt to handle most of the revisions so that these differences would largely offset each other. In December, 1914, failure to allow for the difference in values between new stocks introduced and those eliminated caused an artificial drop in the Industrial Stock averages of over 25 per cent.<sup>5</sup>

<sup>4</sup> For example, General Motors split-up caused an artificial drop in the industrial stock averages of 6.82 points on October 8, 1927.

<sup>5</sup> The very radical change made in the Dow-Jones Industrial Averages in September, 1916, and projected back to December, 1914, resulted in a drop from 71.42 on July 30, 1914, to 54.72 on December 12, 1914, although we know that the market was appreciably higher on the opening day of the Exchange in December after the four months' closing on account of the War. During the month of July, 1914, the 12 Dow-Jones Industrial Stocks declined from 80.33 to 71.42, or a little over 11.09 per cent. When the Exchange was opened again on December 12, 1914, the average of these same 12 stocks was 75.21, representing

4. No consideration has been given to cash dividends, which constitute an essential element in investment experience. Even from a comparative viewpoint when studying the experience of one type in relation to another the results with such omissions may be quite misleading. For example, if we compare the averages of a group of insurance companies, banks or chain stores (regularly paying small dividends of 2 per cent or 3 per cent on market value and re-investing the larger share of earnings) with the averages of a group of industrials paying out over half of their earnings, amounting to 5 or 6 per cent on market values, or with high-grade bonds paying 4.5 per cent, it is apparent that we have favored the low-dividend stocks by this omission.

5. Finally, the graphic portrayal of these averages on a simple arithmetic scale accentuates the movements at the higher prices and minimizes the movements at the lower prices. By reference to the Dow-Jones monthly averages on page 130 it will be noted that the appreciation in 1897 from 39 to 53 actually represents a growth of about 36 per cent, or \$360 on each \$1,000 invested. The appreciation in 1925 from 120 to 155 represents only about 28 per cent, or \$280 on each \$1,000 invested. Yet, the distance on the chart is three times as much for the 28 per cent appreciation as for the larger appreciation on the same amount of capital in 1897. On a logarithmic chart where the same percentage changes are represented by equivalent distances the actual movement of the market from the investor's viewpoint can be much more clearly portrayed.

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an appreciation of 5.33 per cent. Likewise, the 20 stocks used in the new averages appreciated from 51.72 on July 30 to 54.72 on December 12, or 5.82 per cent. In the case of both the twelve old stocks and the 20 new stocks there was practically no change in the July and December monthly high and low average. The drop from 76.6 to 54.9 or 28.2 per cent, in the monthly high and low Dow-Jones Averages just prior to and following the four months' period in 1914 when the Exchange was closed on account of the War did not therefore reflect the actual change in the level of industrial stock prices.

## THE WEAKNESSES OVERCOME

Following the general method of measuring investment experience as outlined in Chapter IV, we have constructed investment experience tables for the industrial and railroad stocks and the bonds selected currently by Dow-Jones as representative samples from January 1, 1901, to January 1, 1928. (See Appendix, pages 370 to 385.) Published records of cash and stock dividends paid, subscription rights issued, and changes in capital structure are very incomplete and unreliable prior to 1917. It was therefore necessary to obtain this information direct from the companies, and the success of this study is due in no small part to their ready coöperation in obtaining these data for us from their corporate records.

The methods by which the five essential weaknesses of the Dow-Jones industrial averages as a measure of investment experience have been overcome are:

1. The market appreciation or depreciation and income on each security for each six months' period were measured as a percentage of the market value at the beginning of the period. The average gain or loss from income and change in market value of principal for each six months' period was then calculated from the sum of these percentages. This in effect gave the same weight to each stock or bond throughout the period irrespective of its market price.

2. The market values of all subscription rights and stock dividends issued are included in our calculations of appreciation

in principal. In the Tables, Appendix, pages 372 to 385, the value of stock dividends are enclosed in a circle (○) and subscription rights in a square (□). In all cases of stock split-ups we have sold the old stocks and bought the new at the market prices prevailing when both issues were being traded in.

3. In all cases of revisions in samples we have calculated the net gains on both the old and the new samples based on the market values on the days revisions were made.

4. All cash dividends or interest payments have been included in our calculation of income.

5. Our indexes of these stocks and bond values have been plotted on a logarithmic scale.

The marked difference between our interpretation of the experience of the Dow-Jones stock samples from a long-term investment viewpoint and the regular Dow-Jones averages may be observed by comparing Charts IX and XII with the corresponding Charts XI and XIV. If one set of charts is a fair picture of investment experience in these Dow-Jones stocks, the other certainly is not.

#### INVESTMENT EXPERIENCE IN INDUSTRIAL STOCKS

Index A on Chart XI represents the experience that a fund would have had if constantly maintained in the Dow-Jones industrial stock samples with the amount of investment in each stock equalized every January 1 and July 1 in accordance with changes in market value. No cash dividends have been included in this index, which shows an average annual



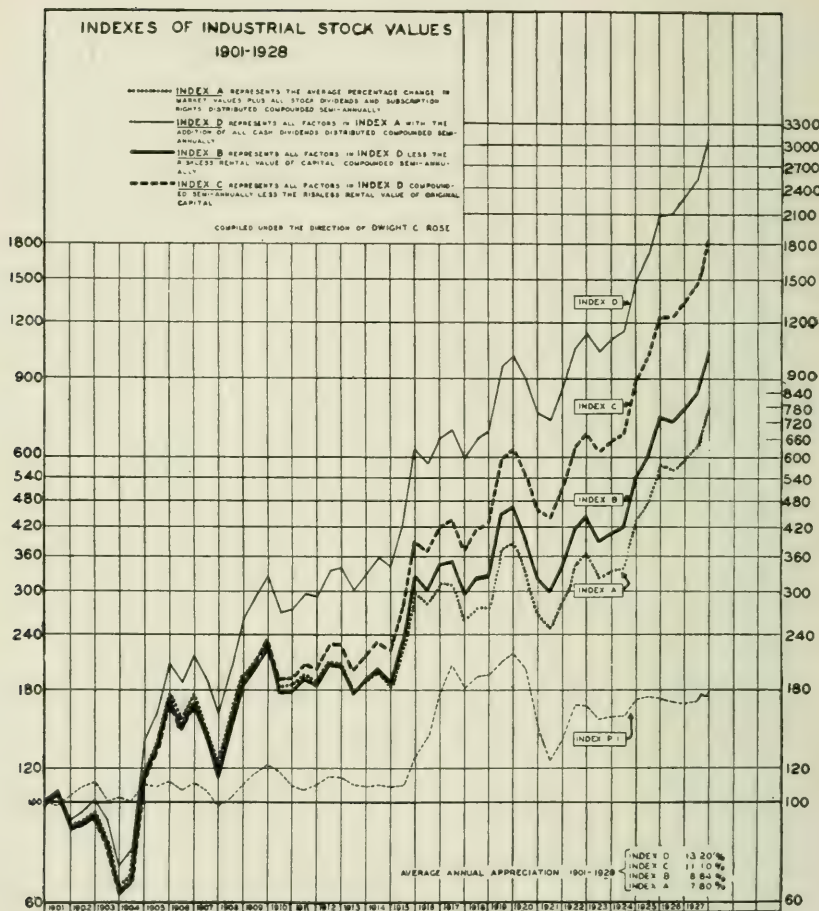


CHART XI

*Chart XI*

## INDEXES OF INDUSTRIAL STOCK VALUES

*Source:* Based on the Investment Experience Table of Industrial Stocks in the Appendix, pages 371 to 377. An explanation of the method of compilation is given on page 370, immediately preceding these tables.

*Trends:*

*Average Annual Appreciation*

	Index D %	Index C %	Index B %	Index A %
Jan. 1, 1901 to July 1, 1921	11.90	7.34	5.42	4.48
July 1, 1921 to Jan. 1, 1928	23.90	23.36	19.96	18.62
Jan. 1, 1901 to Jan. 1, 1928	13.20	11.10	8.84	7.80

Index PI shown on this chart is explained on page 173, opposite Chart XXI.

appreciation of 7.80 per cent compounded semi-annually. This represents a growth from 100 on January 1, 1901, to 788 on January 1, 1928.

Index D represents the experience that a fund would have had if constantly maintained in these industrial stock samples and equalized every six months together with reinvestment of cash dividends received. The average annual appreciation of this index is 13.20 per cent, which, compounded semi-annually, has resulted in a growth in principal value from 100 on January 1, 1901, to 3,146 on January 1, 1928.

Index B represents the experience that a fund would have had if constantly maintained in these samples, equalized every six months, including the investment of cash dividends but deducting every six months an amount calculated by applying the riskless rental rate against the current market value of principal. The average annual appreciation of this index is 8.84 per cent which, compounded semi-annually, has resulted in a growth in principal value from 100 on January 1, 1901, to 1032 on January 1, 1928.

Index C represents the experience that a fund would have had if constantly maintained in these samples, equalized every six months and including reinvestment of cash dividends but deducting every six months the riskless rental value of only the original principal carried in 1901. The average annual appreciation of this index is 11.10 per cent which,

compounded semi-annually, has resulted in a growth in principal value from 100 on January 1, 1901, to 1,844 on January 1, 1928.

From this analysis it would appear that an investor in the Dow-Jones industrial samples with an original principal of \$100,000 who had followed the plan of Index B could have enjoyed a gradually increasing income from \$3,769 in 1901 to \$27,150 in 1927, and at the same time a market appreciation in principal from the original \$100,000 to \$1,032,000 on January 1, 1928. If total cash dividends had been withdrawn this fund would have appreciated to \$788,000; whereas, if all cash dividends had been promptly reinvested, it would have appreciated to \$3,146,000.

By comparing the level of the Dow-Jones industrial and railroad averages in 1901 with the previous and following years as shown in Charts IX and XII it will be observed that 1901 was about the most unfavorable year around this time that could have been selected for the purchase of common stocks. Since the low point in long-term bond yields centers about the beginning of the twentieth century, it is apparent that this also was an unfavorable period for long-term bond purchases.

The Investment Experience Tables of the Dow-Jones samples in railroad stocks and legal railroad, second-grade railroad, public utility and industrial bonds, Appendix pages 378 to 393, have been compiled in accordance with the plan that we have just

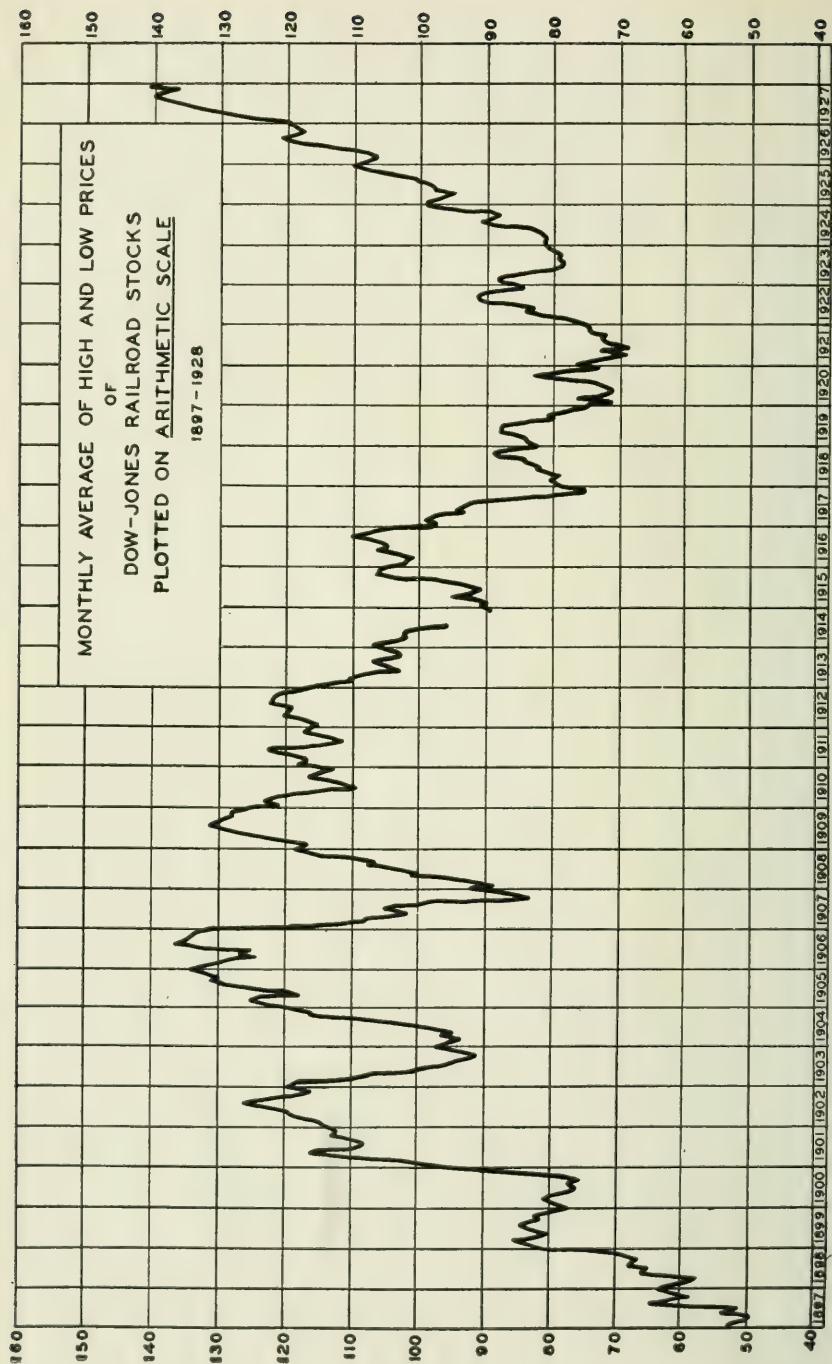


CHART XII



*Chart XII*

MONTHLY AVERAGE OF DOW-JONES RAILROAD STOCKS

PLOTTED ON AN ARITHMETIC SCALE

*Source:* Original record as maintained by Dow-Jones & Company,  
New York.

Fluctuations at the higher prices of 1900 to 1909 and 1924 to 1928 are exaggerated in appearance by use of the arithmetic scale. Compare with Chart XIII.

Dollars

Dollars

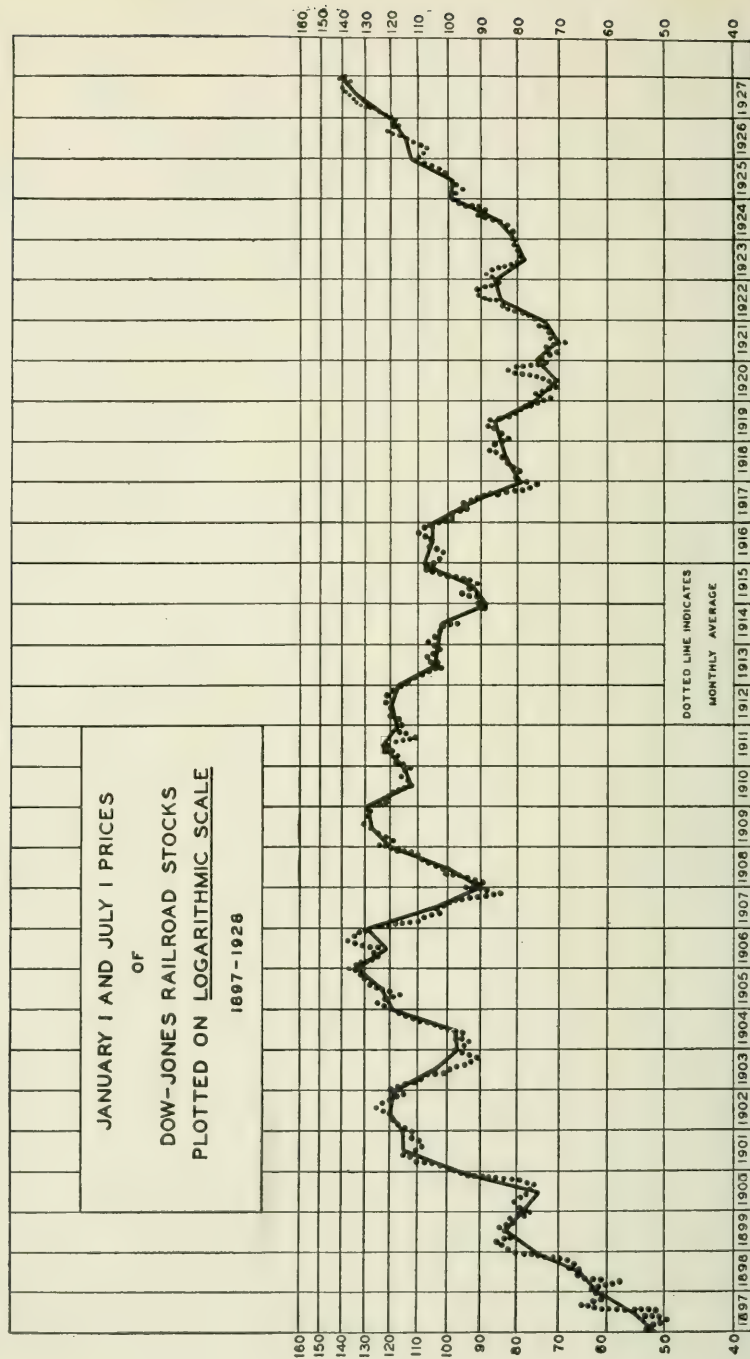


CHART XIII

*Chart XIII*JANUARY 1 AND JULY 1 PRICES AND MONTHLY AVERAGE PRICES OF  
DOW-JONES RAILROAD STOCKS

PLOTTED ON A LOGARITHMIC SCALE

*Source:* Original record as maintained by Dow-Jones & Company,  
New York.

The appearance of extreme fluctuations from 1900 to 1909, and 1924 to 1928 on the arithmetic scale, Chart XII, is considerably moderated on this logarithmic chart.

The heavy line represents the history of averages at six months' intervals and the dotted line is the same monthly average as shown on an arithmetic scale in Chart XII.

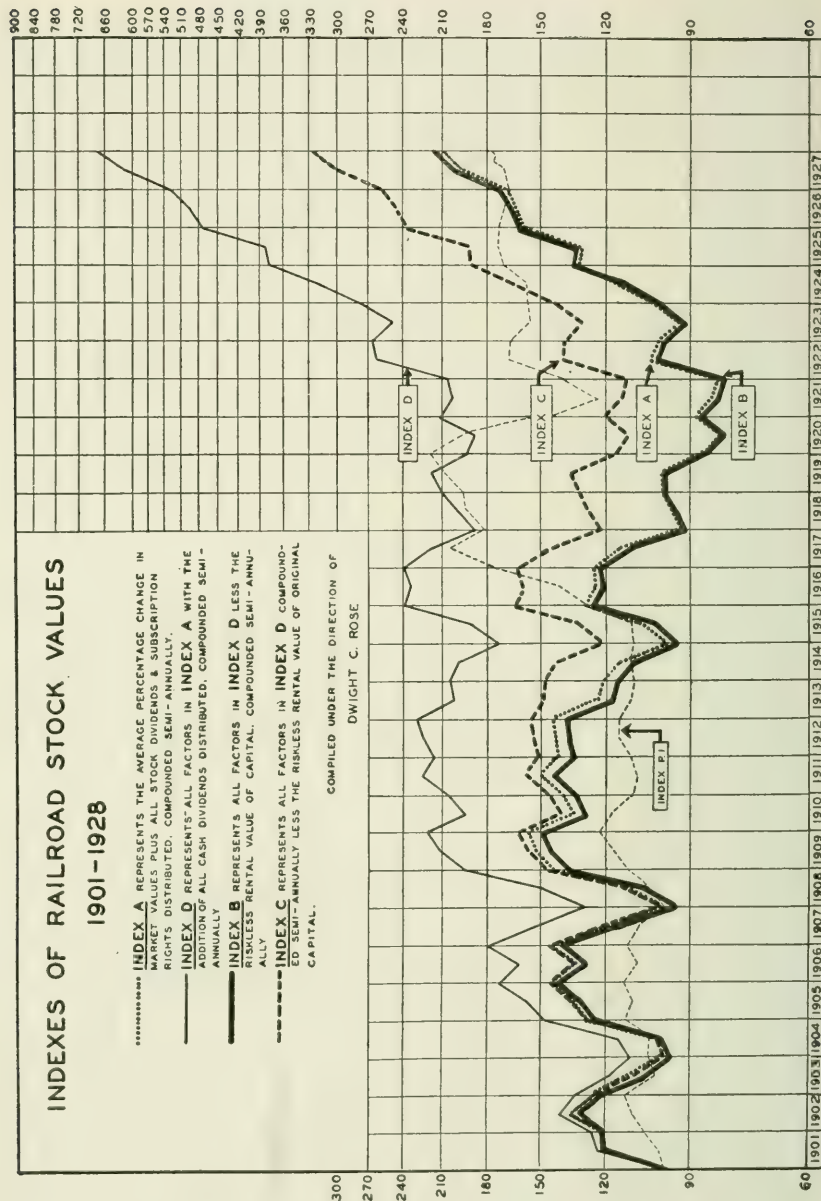
The variation of the monthly from the semiannual record has been superimposed upon our semiannual record of Railroad Stock Values (Chart XIV) in order to obtain the more detailed index shown in Chart XX.

# INDEXES OF RAILROAD STOCK VALUES

## 1901-1928

- \*\*\*\*\* INDEX A REPRESENTS THE AVERAGE PERCENTAGE CHANGE IN MARKET VALUES PLUS ALL STOCK DIVIDENDS & SUBSCRIPTION RIGHTS DISTRIBUTED, COMPOUNDED SEMI-ANNUALLY.
- INDEX D REPRESENTS ALL FACTORS IN INDEX A WITH THE ADDITION OF ALL CASH DIVIDENDS DISTRIBUTED, COMPOUNDED SEMI-ANNUALLY.
- INDEX B REPRESENTS ALL FACTORS IN INDEX D LESS THE RISKLESS RENTAL VALUE OF CAPITAL, COMPOUNDED SEMI-ANNUALLY.
- INDEX C REPRESENTS ALL FACTORS IN INDEX D COMPOUNDED SEMI-ANNUALLY LESS THE RISKLESS RENTAL VALUE OF ORIGINAL CAPITAL.

COMPILED UNDER THE DIRECTION OF  
DWIGHT C. ROSE



*Chart XIV*

## INDEXES OF RAILROAD STOCK VALUES

*Source:* Based on the Investment Experience Table of Dow-Jones Railroad Stocks, in the Appendix, pages 379 to 385. An explanation of the method of compilation is given on page 378, immediately preceding the Investment Experience Table.

*Trends:**Average Annual Appreciation*

	Index D	Index C	Index B	Index A
	%	%	%	%
Jan. 1, 1901 to Jan. 1, 1910	8.86	5.60	4.56	5.14
Jan. 1, 1910 to July 1, 1921	— .62	— 2.80	— 5.14	— 5.32
July 1, 1921 to Jan. 1, 1928	19.44	17.00	15.54	14.60
Jan. 1, 1901 to Jan. 1, 1928	7.24	4.46	2.90	2.76



explained with reference to the Dow-Jones industrial stock samples; and the component parts of investment accomplishment from these different classes of investment are illustrated in Charts XIV to XIX.

#### THE RAILROAD STOCKS

The record of railroad stock values (Chart XIV), is substantially different from that of the industrial stocks. From 1901 to 1910 the general trend was slightly upward, appreciation of Index B for this ten-year period averaging a little better than 4 per cent a year. From the beginning of 1910 to the end of 1921, however, we have a definite downward trend averaging something over 5 per cent a year. Then from 1922 to 1928 there has been a sharp upward trend, this same Index B showing an average annual appreciation of over 15 per cent during the last six years.

Including both income and appreciation, (Index D) the holder of these Dow-Jones railroad stocks has averaged about  $19\frac{1}{2}$  per cent a year since 1922. In other words, for every \$200 invested at the beginning of 1922, with prompt reinvestment of all cash dividends received, the investor in these railroad stocks would at the beginning of 1928 have approximately \$680.

With the exception of the last six years, there is a marked divergence in the trend between the rails and industrials. And it is doubtful if any of us ever

see another period so favorable to railroad stock investments as the last six years. They have been recovering from a long period of confiscation through public enforcement of unprofitable rate schedules, Federal control, and the disastrous effects of the inflationary war period. A more favorable attitude on the part of the public, combined with a marked decrease in operating costs, has enabled the railroads at their prescribed rate schedules to show a tremendous increase in earnings. This increase in earnings has been capitalized in an appreciation of about 150 per cent in value since 1921.

Railroad stocks may still look attractive when considered simply in connection with the relation of their present earnings to selling price. We can buy more earnings for the same amount of money in railroads than in any other class of security; but we must remember that we have a roof here. If commodity prices and cost of labor should suddenly take a spurt forward, the railroads could not raise their rates accordingly, and the increased earning power that we have observed during the last few years might rapidly dwindle. Perhaps public utilities have not yet reached the stage where the roof of prescribed rates will prove a great impediment to their growth and earnings, but the possibilities are present in all public service monopolies, and from the long-term viewpoint it would appear, therefore, that industrial stocks are the class upon which we must rely primarily for growth.

# INDEXES OF LEGAL RAILROAD BOND VALUES 1901-1928

- ..... INDEX A REPRESENTS THE AVERAGE PERCENTAGE CHANGE IN MARKET VALUES, COMPOUNDED SEMI-ANNUALLY.
- INDEX D REPRESENTS INDEX A WITH THE ADDITION OF ALL INTEREST PAYMENTS, COMPOUNDED SEMI-ANNUALLY
- INDEX B REPRESENTS ALL FACTORS IN INDEX D LESS THE RISKLESS RENTAL VALUE OF CAPITAL, COMPOUNDED SEMI-ANNUALLY
- - - - INDEX C REPRESENTS ALL FACTORS IN INDEX D COMPOUNDED SEMI-ANNUALLY LESS THE RISKLESS RENTAL VALUE OF ORIGINAL CAPITAL.

COMPILED UNDER THE DIRECTION OF  
DWIGHT C. ROSE

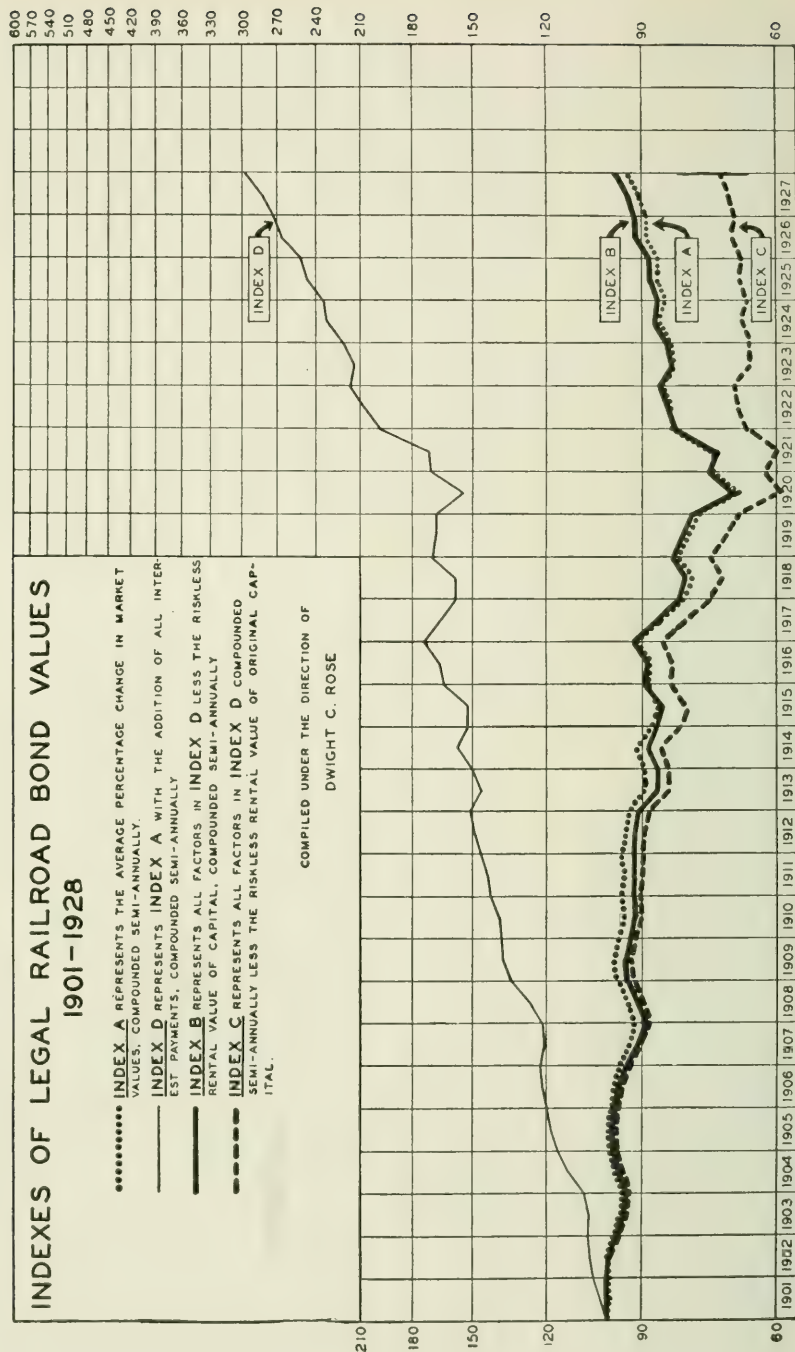


CHART XV

*Chart XV*

## INDEXES OF THE LEGAL RAILROAD BOND VALUES

*Source:* Based on the Investment Experience Table of Dow-Jones & Company Legal Railroad Bonds in the Appendix, pages 387 to 393. An explanation of the method of compilation is given on page 386 immediately preceding the Investment Experience Table.

*Trends:*

*Average Annual Appreciation*

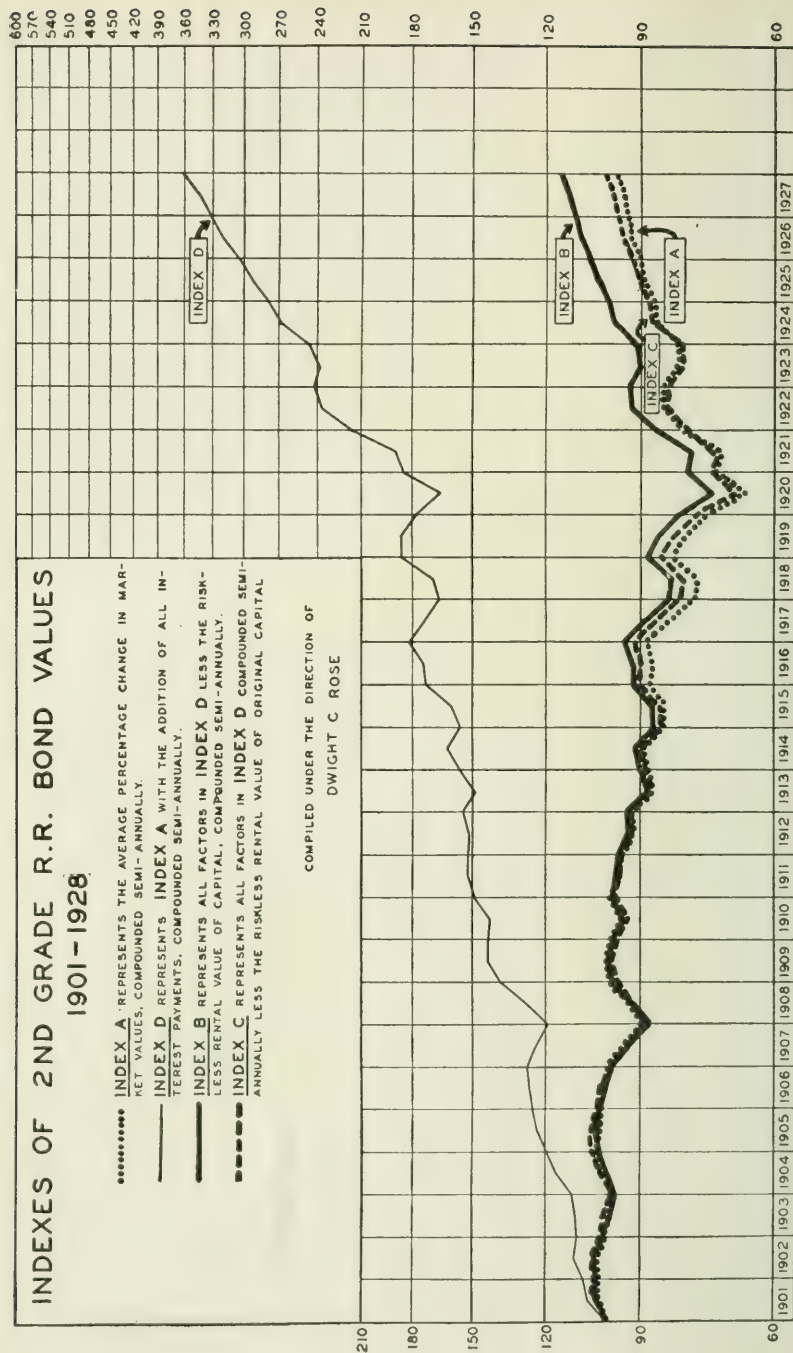
	Index D %	Index C %	Index B %	Index A %
Jan. 1, 1901 to July 1, 1920	2.22	- 2.70	- 1.94	- 1.94
July 1, 1920 to Jan. 1, 1928	9.08	2.60	4.78	4.36
Jan. 1, 1901 to Jan. 1, 1928	4.10	- 1.23	- .08	- .22

It will be noticed that these high-grade legal railroad bonds have shown the poorest record of the four groups of bonds, both from the viewpoint of fluctuation in value as well as aggregate accomplishments over the entire period.

# INDEXES OF 2ND GRADE R.R. BOND VALUES 1901-1928

- ..... INDEX A REPRESENTS THE AVERAGE PERCENTAGE CHANGE IN MARKET VALUES, COMPOUNDED SEMI-ANNUALLY.
- INDEX D REPRESENTS INDEX A WITH THE ADDITION OF ALL INTEREST PAYMENTS, COMPOUNDED SEMI-ANNUALLY.
- INDEX B REPRESENTS ALL FACTORS IN INDEX D LESS THE RISKLESS RENTAL VALUE OF CAPITAL, COMPOUNDED SEMI-ANNUALLY.
- INDEX C REPRESENTS ALL FACTORS IN INDEX D COMPOUNDED SEMI-ANNUALLY LESS THE RISKLESS RENTAL VALUE OF ORIGINAL CAPITAL

COMPILED UNDER THE DIRECTION OF  
DWIGHT C ROSE





*Chart XVI*

## INDEXES OF SECOND-GRADE RAILROAD BOND VALUES

*Source:* Based on the Investment Experience Table of Dow-Jones & Company Second-Grade Railroad Bonds in the Appendix, pages 387 to 393. An explanation of the method of compilation is given on page 386, immediately preceding the Investment Experience Tables.

*Trends:*

*Average Annual Appreciation*

	Index D %	Index C %	Index B %	Index A %
Jan. 1, 1901 to July 1, 1920	2.58	- 2.02	- 1.68	- 2.04
July 1, 1920 to Jan. 1, 1928	10.76	5.66	6.60	5.36
Jan. 1, 1901 to Jan. 1, 1928	4.82	.08	.58	- .06

LEGAL RAILROAD BONDS MADE THE  
POOREST SHOWING

In our records of the legal railroad bonds (Chart XV) from 1901 to 1920, Index B shows an average annual depreciation of almost 2 per cent; and from 1920 to 1928 an average annual appreciation of about  $4\frac{3}{4}$  per cent. Index C drops below 60 per cent in 1920 and 1921. It will be remembered that Index C represents the history of a fund where all interest is reinvested, but the fund is charged each year with the riskless rental value of the original capital invested in 1901. On such a basis the investor would have suffered an average annual decrease of about  $2\frac{3}{4}$  per cent up to 1920, and the pronounced appreciation in bond values since 1920 would have fallen far short of restoring his original principal. He would at the beginning of 1928 have only about 71 per cent of the amount that he originally started with in 1901. These legal railroad bonds, undoubtedly the best secured of any of the bond groups that we have studied, in practice made the poorest showing of all because they were the ones that most fully reflected the gradual increase in interest rates during the first 20 years of this century, and of course their greater security was reflected in a comparatively low coupon rate.

The second-grade railroad bonds (Chart XVI) did a little better. The decline from 1901 to 1920 of

Index B averaged annually a little over  $1\frac{1}{2}$  per cent a year, and from 1920 to 1928 the average annual rate of appreciation was more than  $6\frac{1}{2}$  per cent. From 1901 to 1928 Index D (the index which includes reinvestment of all interest payments as well as appreciation without any deductions for rental value) showed an average annual appreciation of about 4.80 per cent a year—somewhat better than the average riskless rental value of capital throughout the period, as will be apparent by examining Index B which had reached 116 per cent at the beginning of 1928. Index C (the fund that has been charged with the rental value each year of the original principal in 1901) was restored to its 1901 value of 100 per cent during 1927. Index A (the fund from which all interest payments have been deducted) had not quite reached 98 per cent at the beginning of 1928.

#### PUBLIC UTILITY THE BEST OF BOND GROUP

Public utility bonds (Chart XVII) have shown the best record of any of the bond group. It is probably to be expected that they should, since they have been a relatively new type of investment and anything new is usually undervalued until it becomes seasoned and investors are accustomed to it. For the 27-year period, 1901 to 1928, Index D on this Chart shows an average annual appreciation of  $5\frac{1}{4}$  per cent; for the 7 years, 1921 to 1928, the average

# INDEXES OF PUBLIC UTILITY BOND VALUES 1901-1928

- ..... INDEX A REPRESENTS THE AVERAGE PERCENTAGE CHANGE IN MARKET VALUES, COMPOUNDED SEMI-ANNUALLY
- INDEX D REPRESENTS INDEX A WITH THE ADDITION OF ALL INTEREST PAYMENTS, COMPOUNDED SEMI-ANNUALLY
- INDEX B REPRESENTS ALL FACTORS IN INDEX D LESS THE RISK-LESS RENTAL VALUE OF CAPITAL, COMPOUNDED SEMI-ANNUALLY
- - - - INDEX C REPRESENTS ALL FACTORS IN INDEX D COMPOUNDED SEMI-ANNUALLY LESS THE RISKLESS RENTAL VALUE OF ORIGINAL CAPITAL

COMPILED UNDER THE DIRECTION OF  
DWIGHT C. ROSE

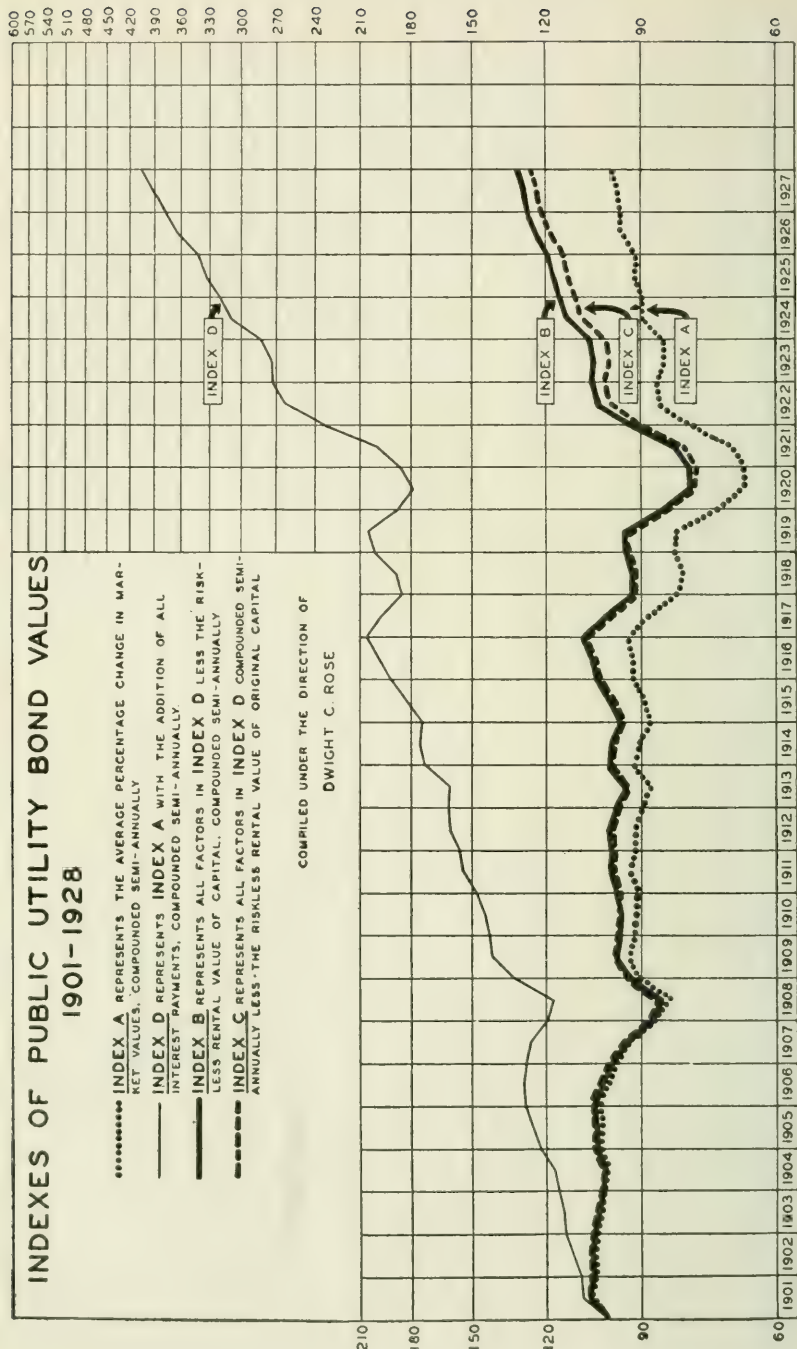


CHART XVII

*Chart XVII*

## INDEXES OF PUBLIC UTILITY BOND VALUES

*Source:* Based on the Investment Experience Table of Dow-Jones & Company Public Utility Bonds in the Appendix, pages 387 to 393. An explanation of the method of compilation is given on page 386, immediately preceding the Investment Experience Table.

This group shows the best aggregate results for the entire period.

*Trends:*

*Average Annual Appreciation*

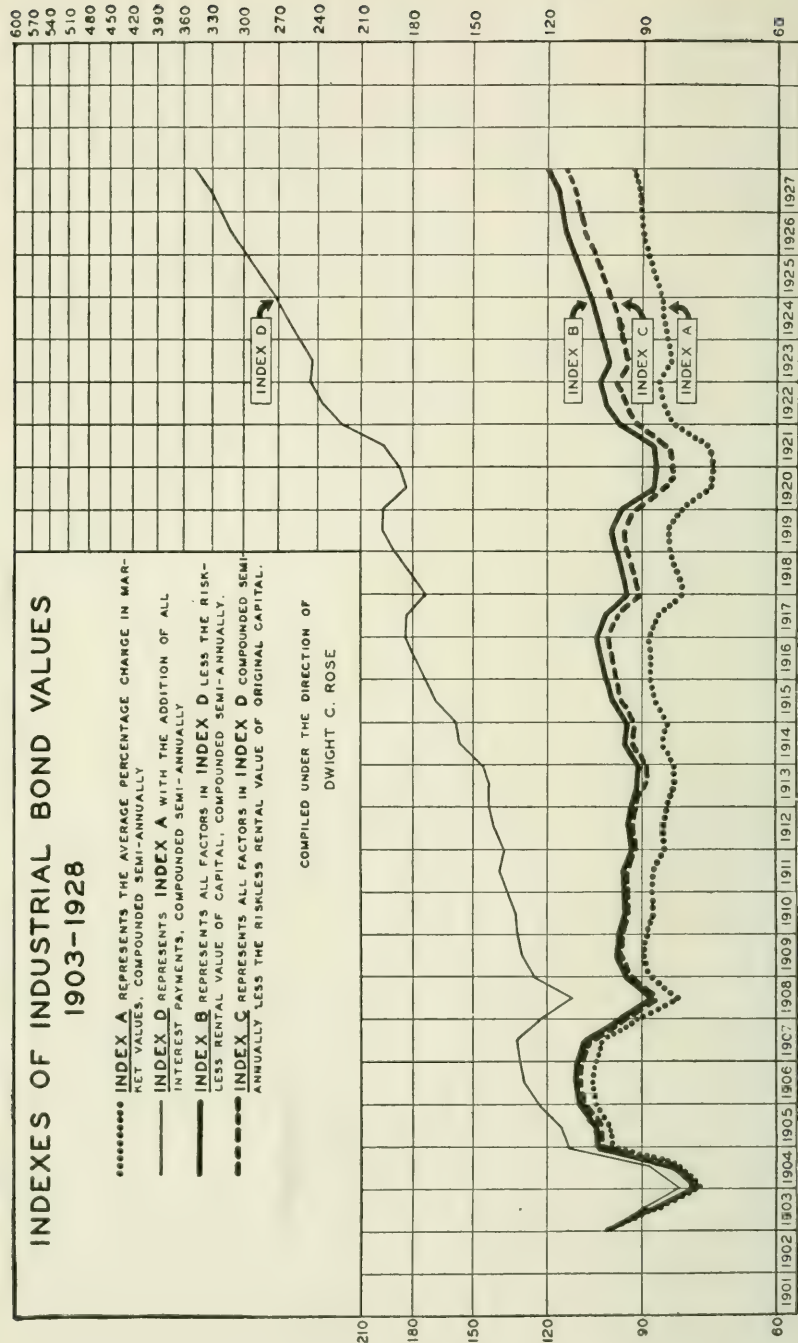
	Index D %	Index C %	Index B %	Index A %
Jan. 1, 1901 to July 1, 1920	3.02	- 1.32	- 1.22	- 2.10
July 1, 1920 to Jan. 1, 1928	11.12	6.80	7.00	5.26
Jan. 1, 1901 to Jan. 1, 1928	5.24	.90	1.02	- .08



# INDEXES OF INDUSTRIAL BOND VALUES 1903-1928

- ..... INDEX A REPRESENTS THE AVERAGE PERCENTAGE CHANGE IN MARKET VALUES, COMPOUNDED SEMI-ANNUALLY
- INDEX D REPRESENTS INDEX A WITH THE ADDITION OF ALL INTEREST PAYMENTS, COMPOUNDED SEMI-ANNUALLY
- INDEX B REPRESENTS ALL FACTORS IN INDEX D LESS THE RISKLESS RENTAL VALUE OF CAPITAL, COMPOUNDED SEMI-ANNUALLY
- - - - INDEX C REPRESENTS ALL FACTORS IN INDEX D COMPOUNDED SEMI-ANNUALLY LESS THE RISKLESS RENTAL VALUE OF ORIGINAL CAPITAL

COMPILED UNDER THE DIRECTION OF  
DWIGHT C. ROSE



*Chart XVIII*

## INDEXES OF INDUSTRIAL BOND VALUES

*Source:* Based on the Investment Experience Table of Dow-Jones & Company Industrial Bonds in the Appendix, pages 387 to 393. An explanation of the method of compilation is given on page 386, immediately preceding the Investment Experience Table.

*Trends:*

*Average Annual Appreciation*

	Index D %	Index C %	Index B %	Index A %
Jan. 1, 1903 to July 1, 1920	3.50	- 1.02	- .82	- 1.76
July 1, 1920 to Jan. 1, 1928	8.70	4.26	4.54	3.32
Jan. 1, 1903 to Jan. 1, 1928	5.04	.54	.78	- .26

annual rate of growth is over 11 per cent. It is obvious from Index A, however, that in January, 1928, market values were still about 2 per cent behind the point from which they started in 1901. The higher coupon rate on the public utility bonds is primarily accountable for their better showing throughout the whole period.

The record of industrial bonds in Chart XVIII ranks next to the public utilities. For the 25 years, 1903 to 1928, Index D shows an average annual growth of 5 per cent; for the 8 years, 1920 to 1928, it averages about  $8\frac{3}{4}$  per cent a year. Our index of industrial bond values did not start until 1903 because none of the Dow-Jones industrial bonds were outstanding before that time. Here again the higher coupon rate is responsible for the better showing than the rails, inasmuch as Index A had not reached 94 per cent on January 1, 1928.

#### THE FOUR BOND GROUPS COMBINED

In Chart XIX, showing the indexes of the values of all four groups of bonds combined, we get the effect of an increasing proportion of public utility and industrial bonds. These indexes are a fair representation of what we might have expected the average intelligent investor to have accomplished from a well-diversified group of high-grade bonds during this period. Throughout the entire period of 27 years Index D shows an average annual appreciation

of about  $4\frac{3}{4}$  per cent; in the 8 years, 1920 to 1928, the rate of annual growth was almost 10 per cent. Index A lacked 2 per cent and Index C lacked  $\frac{3}{10}$  of 1 per cent of a complete return to 1901 values at the beginning of 1928, when Index B stood at  $14\frac{3}{4}$  per cent above the value in 1901. From 1901 to 1920 Index B showed an average annual decline of almost  $1\frac{1}{2}$  per cent, and since 1920 the appreciation has averaged about  $5\frac{3}{4}$  per cent a year.

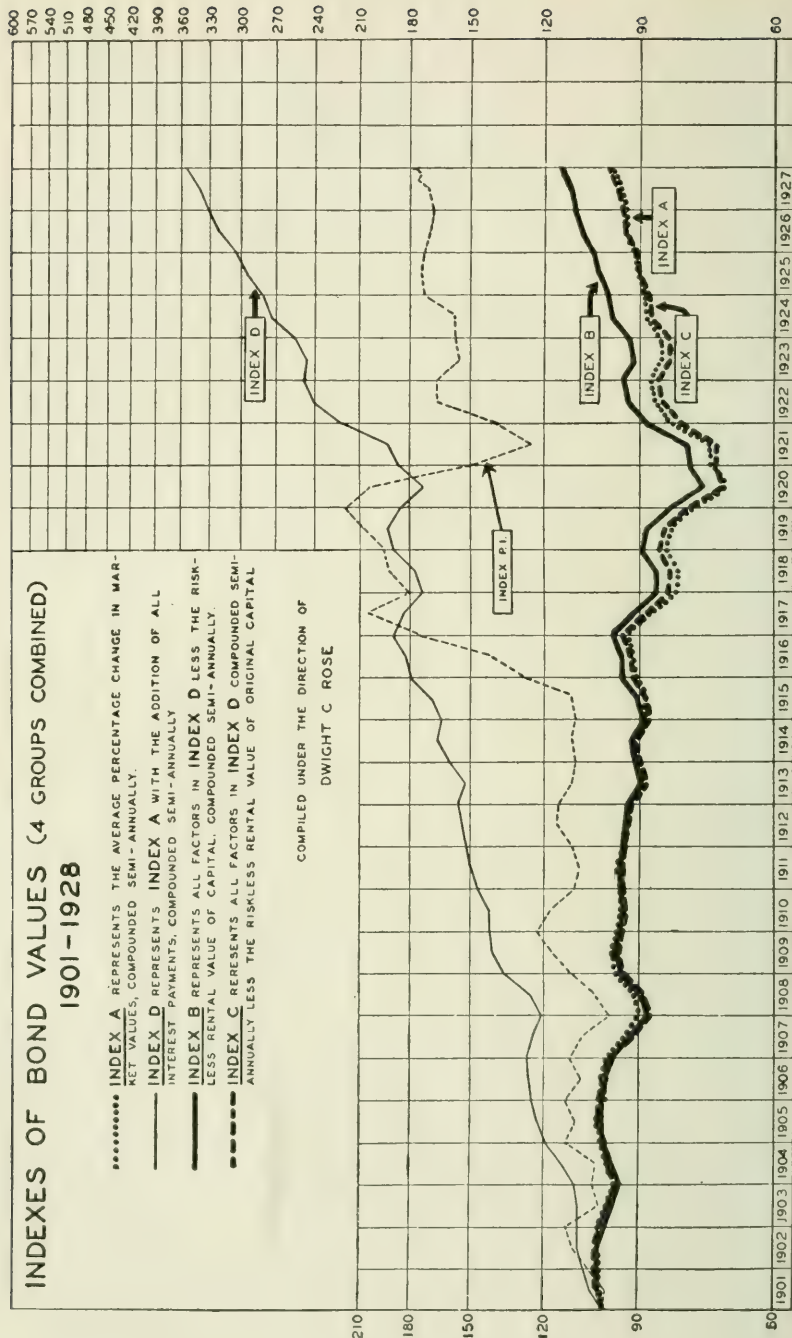
The Dow-Jones bond averages were not started until 1915 and the record shown previous to this time is therefore open to the criticism of hindsight selection. We have previously pointed out that hindsight selection will usually indicate an experience somewhat better than might have been obtained by current selection. However, the variations in results to be accomplished from different bonds of the same general grade are almost negligible as compared with the widely varying results from different stock holdings. Also, the slight gain that might have accrued from this hindsight selection from 1901 to 1915 accrues to the least successful of the three general groups (1, industrial stocks; 2, railroad stocks; 3, bonds), and is, therefore, not likely to affect our general conclusions.

From another viewpoint this disadvantage of hindsight selection may be utilized in a manner to serve our own purposes. Assuming that the average investor would have diversified between the general types of industrial, public utility, and railroad bonds

# INDEXES OF BOND VALUES (4 GROUPS COMBINED) 1901-1928

- ..... INDEX A REPRESENTS THE AVERAGE PERCENTAGE CHANGE IN MARKET VALUES, COMPOUNDED SEMI-ANNUALLY.
- INDEX D REPRESENTS INDEX A WITH THE ADDITION OF ALL INTEREST PAYMENTS, COMPOUNDED SEMI-ANNUALLY.
- INDEX B REPRESENTS ALL FACTORS IN INDEX D LESS THE RISK-LESS RENTAL VALUE OF CAPITAL, COMPOUNDED SEMI-ANNUALLY.
- - - - INDEX C REPRESENTS ALL FACTORS IN INDEX D COMPOUNDED SEMI-ANNUALLY LESS THE RISKLESS RENTAL VALUE OF ORIGINAL CAPITAL.

COMPILED UNDER THE DIRECTION OF  
DWIGHT C. ROSE





*Chart XIX*

## INDEXES OF BOND VALUES

(FOUR GROUPS COMBINED)

*Source:* Based on the Investment Experience Table of Dow-Jones & Company Forty Bonds in the Appendix, pages 387 to 393. An explanation of the method of compilation is given on page 386, immediately preceding the Investment Experience Table.

*Trends:*

*Average Annual Appreciation*

	Index D	Index C	Index B	Index A
	%	%	%	%
Jan. 1, 1901 to July 1, 1920	2.64	- 1.82	- 1.46	- 1.82
July 1, 1920 to Jan. 1, 1928	9.90	4.76	5.78	4.56
Jan. 1, 1901 to Jan. 1, 1928	4.78	- .02	.50	- .08

currently available throughout the period, we are confronted with the fact that in 1901 practically all of the available listed bonds were rails. Industrial and public utility issues have come gradually into popular favor and are still growing at a much faster rate than the rails. When selecting their samples in 1915 Dow-Jones tried to pick the most representative issues that had already been outstanding for a sufficient time to become well seasoned. Since this selection favored issues that had already been outstanding for the longest time the dates of issue of the public utility and industrial bonds are therefore indicative of the growing importance of these two general types of bonds. By introducing these bonds, selected by hindsight in 1915, at the dates of issue, we give a gradually increasing weight to industrial and public utility bonds in accordance with the increasing supply available to the investor. By reference to the Experience Table of Bonds, Appendix, pages 386 to 393, it will be noted that this record is composed entirely of rails in 1901, but in the latter years gradually introduces a fair representation in the industrial and public utility issues.

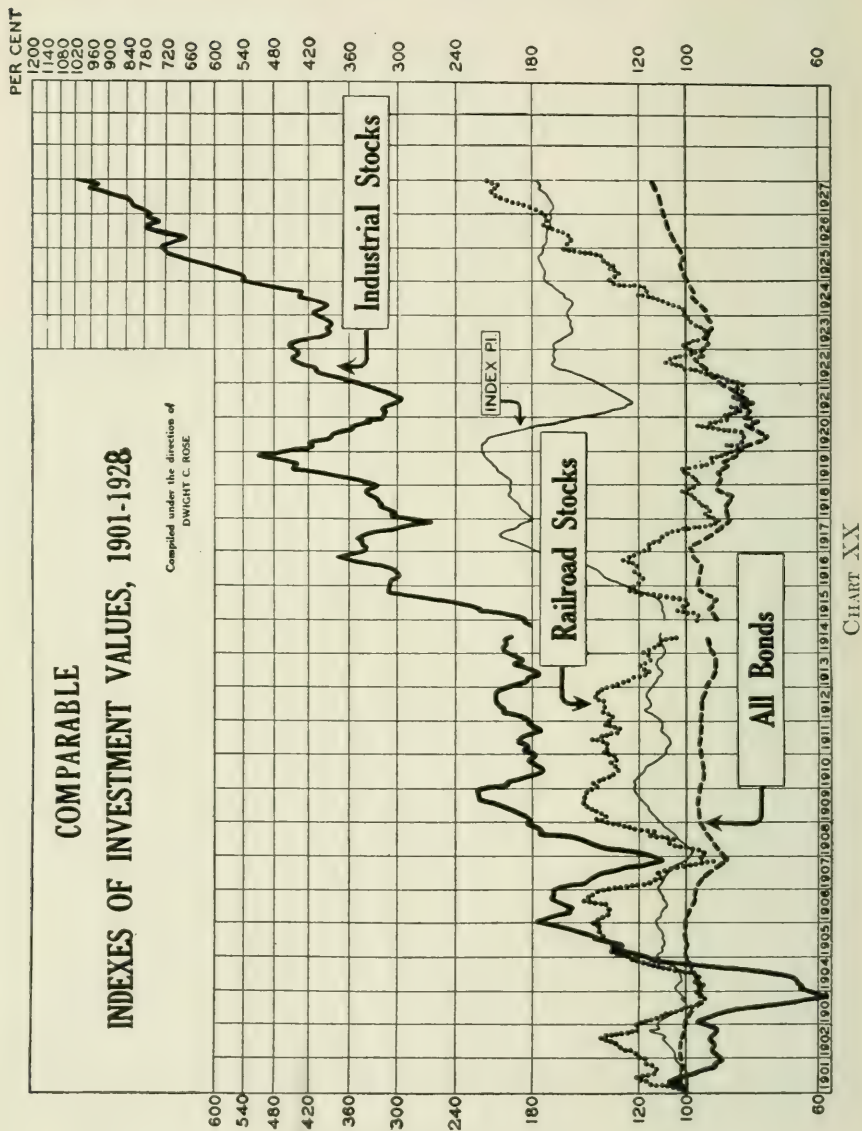
#### COMPARATIVE INVESTMENT EXPERIENCE FROM THREE GENERAL TYPES

The foregoing analyses of the component parts of return in the several major types of investment warrant a careful study that is somewhat beyond the

scope of this book. The trend figures given on the descriptive pages facing each chart are, however, particularly significant. In each of these charts illustrating the experience in different classes of investments, we have presented the story from four different viewpoints in order to get a more nearly complete picture of the history and at the same time a clearer conception of the relative importance of the different factors as included in each index. We may, however, consolidate the investment experience that we have been analyzing in these charts under three general headings: (1) industrial stocks, (2) railroad stocks, and (3) all bonds.

For the purpose of comparing the experience of these three major groups, Index B, as shown for each group, appears most suitable, since it places each class of investment on a directly comparable basis between any two points of time, with due allowance for the varying amounts paid out in interest or dividends and the varying fluctuations in market value. When this Index B of each class is put on the same chart (Chart XX) we can compare directly the experiences of all three groups between any two points of time.

If the reader wishes to consider the history of a fund where all cash dividend and interest payments have been squandered without advantage to either the fund or its beneficiary (a very impractical hypothesis, yet the one consciously or unconsciously generally accepted), Index A in each of these studies will give a comparative record of these changes in



*Chart XX*

## COMPARABLE INDEXES OF INVESTMENT VALUES

*Source:* Indexes "B" in Charts XI and XIV (as derived from the Industrial and Railroad Stock Experience Tables, pages 371 to 385) upon which have been superimposed the monthly variations shown in Charts X and XIII. The All Bonds index was similarly derived from the Bond Experience Table, pages 386 to 393.

Index PI as shown on the chart is explained on page 173, opposite Chart XXI.

On this chart we may compare between any two points of time the relative accomplishments that would have been obtained through investment in each of the three major groups: (1) industrial stocks, (2) railroad stocks, and (3) railroad, public utility and industrial bonds.



principal value. If he wishes to consider the history of a fund where all cash dividends and interest payments have been promptly reinvested, Index D in each study will serve as a proper basis for comparison. If he wishes to consider the relative status of each type of investment beginning January 1, 1901, after deduction throughout the period of a fair rental value on the original capital of January 1, 1901, the Indexes C will best serve his purpose. If, however, he wishes to have a representative picture of the relative advantage of each type of investment that is comparable between any two points of time throughout the period, he should use Indexes B. An increase or decrease in market value of Index B also implies an equivalent increase or decrease in the income withdrawn (riskless rental rate applied against current market value).

We have therefore presented the experience in bonds, and railroad and industrial common stocks from this viewpoint on a monthly basis (Chart XX). The monthly variations were obtained by superimposing on our Index B the monthly variations from the six months' figures of the averages as shown in Charts X and XIII.

The comparative investment accomplishments from industrial stocks, railroad stocks and all bonds illustrated in Chart XX may be recapitulated in a simple table showing the changed position of three funds of \$100,000 maintained respectively in each general class of investment during the last 27 years.

TABLE VI  
Comparative Growth of Three Funds

	Principal		Riskless Rental Income	
	January, 1901	January, 1928	1901	1927
Industrial Stock				
Fund.....	\$100,000	\$1,032,200	\$3,760	\$27,150
Railroad Stock				
Fund.....	100,000	217,650	3,760	7,420
All Bond Fund ..	100,000	114,420	3,760	3,970

The above table clearly illustrates the wide divergence in trend of these three major types of investment over the last quarter century. But will the future be necessarily a repetition of the past?

## *Chapter VII*

### THE FUTURE TREND OF COMMON STOCK VALUES

CHART XX, showing the comparable experience in industrial common stocks, railroad common stocks, and all bonds, displays a wide variation in results from these three general types of securities. The unusually pronounced and, from a long-term viewpoint, relatively constant rate of appreciation of industrial common stocks will quite naturally prompt an inquiry into the relative importance of the underlying factors responsible therefore. Economists and students of financial affairs will generally agree that, irrespective of temporary fluctuations above and below the general trend, changing equity values have been primarily dependent on the following factors:

1. Changes in the level of commodity prices as reflected in a higher or lower valorization of plant or productive facilities and inventories, and also in earnings.
2. Changes in the level of interest rates to the extent that they are reflected in a changed ratio of earnings to selling price of stocks.
3. Changes in company earnings resulting from a varying volume of production or a varying percentage of profit.

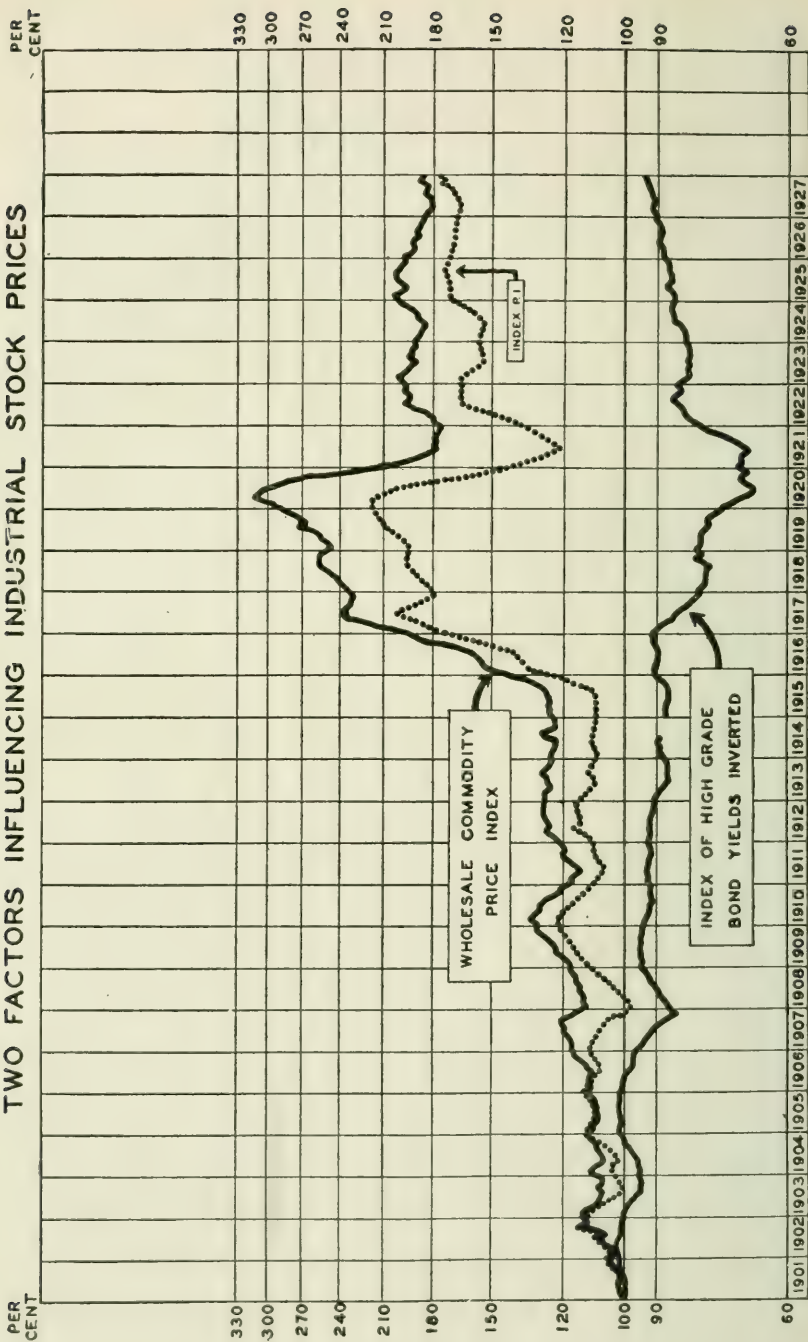
It may appear that these three factors are so general that they almost beg the question; but with the records of investment experience that we have been

studying we may perhaps draw some interesting conclusions.

There is no method by which the actual influence of changing commodity prices and changing interest rates on stock prices can be satisfactorily measured. We do know, however, that both of these factors have some effect. In fact, several of the leading statisticians and economists in the country have expressed the opinion that the growth in stock values since the beginning of the century has been *primarily* attributable to an increase in commodity prices.

It is also apparent that changing interest rates have an important effect on investment values. That is to say, when interest rates are high the investor demands that his stocks earn a higher ratio of earnings to selling price; when interest rates are low and the most he can get from a good bond is 4 per cent, he is probably satisfied if he is getting a 4 per cent dividend return on his common stock and if another 4 per cent is carried to surplus to provide a gradual appreciation over a period of years to compensate for the risk. When interest rates decline from 6 per cent to 4 per cent it has a stimulating effect on stock prices. Particularly in the year 1927 we had a clear illustration of this. At the beginning of the year the Dow-Jones industrial stocks showed an average ratio of earnings to selling price of 10.2 per cent; and at the end of the year it had dropped to 6 per cent. The actual earnings of these companies on the average changed only slightly from 1926, and commodity

# TWO FACTORS INFLUENCING INDUSTRIAL STOCK PRICES





*Chart XXI*

## TWO FACTORS INFLUENCING INDUSTRIAL STOCK PRICES

*Sources: Wholesale Commodity Price Index:*

U. S. Department of Labor Wholesale Commodity Price Index taking January 1, 1901 (the time of inception of our investment experience tables) as 100%.

*Index of High-Grade Bond Yields Inverted:*

The yield on 60 high-grade bonds as maintained by Standard Statistics taking the yield in January, 1901, as 100% and measuring the variations of yield from this point in inverse ratio.

Index PI is the product of the *Wholesale Commodity Price Index* and the *High-Grade Bond Yield Inverted Index*. Index PI represents the theoretical resultant influence on industrial stock prices if variations in the commodity price level and variations in the level of interest rates are completely reflected in the dollar value of these stocks.

*Trends:**Average Annual Per Cent Change*

	Commod- ity Prices	Yields Inverted	Index PI
Jan. 1, 1901 to July 1, 1920	5.80	- 2.04	3.70
July 1, 1920 to Jan. 1, 1928	- 6.38	4.48	- 2.04
Jan. 1, 1901 to Jan. 1, 1928	2.34	- .24	2.10

prices remained fairly stable. The main cause of the appreciation in stock values for 1927 thus appears to have been the reflection of a lower interest rate.

In view of this, it will be illuminating to observe to what extent a direct and complete reflection of both of the first two factors (changing commodity prices and changing interest rates) might have affected industrial stock values.

#### INFLUENCE OF COMMODITY PRICES AND INTEREST RATES

In Chart XXI have been plotted the changes in the United States Department of Labor wholesale commodity price index and the changes in high grade bond yields inverted, taking January 1, 1901, in each case as 100 per cent. The resultant of these two influences, if fully reflected in stock values, would then be represented by the dotted line which is the product of the other two. This resultant index is shown as a small unbroken line and labeled Index PI (Prices-Interest) in our charts of industrial and railroad stock values, and all bond values.

It is apparent from Chart XI and Chart XX, that even after deducting an assumed direct and complete reflection of changing commodity prices and changing interest rates, the major part of the appreciation in industrial stock values from 1901 to the present time is still unaccounted for. Commodity prices and interest rate changes, however, if fully reflected in

stock values might account for most of the pronounced upward movement during the war period and for the violent downward movement in 1920.

The average annual rate of appreciation of Index PI from 1901 to January, 1928 (shown on descriptive page facing Chart XXI), figures out at 2.10 per cent compared to an average annual rate of appreciation of industrial stock prices (Index A, Chart XI) of 7.80 per cent. It would therefore appear that a direct reflection of the first two influences of changing commodity prices and changing interest rates may have contributed a little more than 25 per cent of the upward trend in industrial stock prices throughout this period.<sup>1</sup>

#### PLOWING BACK PART OF EARNINGS

If the three causes to which we have attributed changing stock values are all-inclusive, the elimination of the first two still leaves approximately 75 per cent of the appreciation in industrial stock prices to be accounted for by the third factor of increased earnings resulting from greater volume of production

<sup>1</sup>It is possible that changing commodity prices may have been reflected more than 100% in common stock prices, particularly in those companies with large funded debts and large preferred issues outstanding. If, for example, it were assumed that the capital structure of the average industrial corporation was divided about evenly between common stock and fixed income bearing securities (including bonds and preferred stock), commodity price changes might theoretically have been reflected 200% in common stock prices. Under such an assumption the two influences of changing commodity prices and changing interest rates might have contributed approximately one half of the upward trend of industrial stock prices throughout the 27-year period.

or a larger percentage of profit. Increased dollar earnings with the same volume of physical production and the same percentage of profit have been already accounted for through the direct influence of commodity price changes. But what is the most important contributing influence on the third factor of larger *volume* of production or larger *percentage* of profit? The most apparent influence is of course the gradual increase or improvement in productive facilities. Additional capital expended for expansion or modernization of productive facilities should promote a definite increase in the volume of production through greater capacity, or a larger percentage of profit through more efficient operation.

We know that one of the basic principles of successful industrial management is the regular reinvestment of a portion of earnings, a process of plowing back part of the profits for business expansion. Therefore, the relationship that exists between the trend of industrial stock values and the reinvestment of excess earnings demands attention.

Referring again to Chart XI, it will be observed that the average annual appreciation of Index D (including reinvestment of all cash dividends) from 1901 to 1928 was 13.20 per cent. The average annual appreciation of Index A (excluding all cash dividends) was 7.80 per cent. By subtracting 7.80 per cent from 13.20 per cent, we find the average annual amount paid out in dividends was 5.40 per cent.

Careful studies of these industrial stocks for this

period show that the average ratio of annual earnings to market price was about 11.90 per cent.<sup>2</sup> Subtracting the 5.40 per cent (the average annual amount paid out in dividends) from the 11.90 per cent (the average annual amount earned) leaves 6.50 per cent as the average annual reinvestment of earnings by these industrial companies. There are many minor errors, of course, that creep into such average percentages as this, covering a long period of years, but we believe that they can be accepted as fair approximations. It will be observed that the average annual reinvestment of earnings of 6.50 per cent is not substantially below the average annual appreciation of Index A of 7.80 per cent. This would indicate that reinvestment of excess earnings<sup>3</sup> above dividend payments was responsible for most of the growth in industrial stock values. And it is wholly logical that intelligent reinvestment of earnings should have an equivalent effect on equity values, except in the case of public service monopolies where increased profits from reinvested earnings may be confiscated for the public through the forced adoption of prescribed rate schedules.

<sup>2</sup> It is interesting to observe that the 11.90% average annual earnings to price ratio is less than the 13.20% average annual appreciation of Index D. This suggests that the average ratio of earnings to selling prices of a representative list of industrials has, in spite of the generally accepted risk factor, been a conservative index of the investment results to be obtained.

<sup>3</sup> If changing commodity prices have a direct effect upon the market value of stocks, as well as the dollar earnings of these stocks, it is apparent that there would be no resultant change in the earnings ratio. That is, if the dollar value per share increased 10 per cent and the dollar earnings increased 10 per cent, it is clear that the ratio of earnings to selling price would remain the same.



THE LONG-TERM ADVANTAGE OF  
INDUSTRIAL COMMON STOCKS

From the long-term viewpoint we may conclude that industrial common stocks have shown an advantage over bonds approximating the extent that the ratio of earnings to selling price of the stocks has exceeded the yield on bonds; and that something more than changing commodity prices or changing interest rates will be required to interrupt the long-term upward trend of industrial stock values which has been fairly constant as far back as we can obtain reliable information.

But the experience of the past indicates that changes in the commodity price level and changes in interest rates may have a pronounced influence on, or may be primarily responsible for, temporary violent movements such as we observed during the war period and the deflation of 1920.

It should be emphasized, however, that our findings with respect to industrial common stocks are not dependent upon the last few years of extraordinary appreciation. In fact, if we had terminated our investment experience tables anywhere after the first 10 years (a period long enough to indicate a long-term trend) our studies would have supported substantially the same conclusions.

The compounding effect of reinvestment of excess earnings so much overshadows all other factors influencing the long-term trend of industrial stock values

that it would appear that industrial stocks could be purchased with confidence in the continuance of this long-term upward trend so long as the industries supporting civilization move forward; so long as the dividends represent a conservative portion of total earnings; and so long as the major part<sup>4</sup> of excess earnings is not discounted in a greatly inflated market value.

<sup>4</sup>If excess earnings were completely discounted in market price so that cash dividends paid plus reinvested earnings totaled no more than the current yield on high-grade bonds, we might still have the compounding influence of excess earnings, but this would only compensate for the sacrifice in current income. The situation would be comparable to a discount bond bought on a 5 per cent yield basis but paying out currently only 3 per cent on the purchase price. The compounding effect of the extra 2 per cent gradually accrues to the principal value of the bond. The bondholder has sacrificed income in favor of appreciation but has gained nothing over what he would have obtained by buying a 5 per cent bond at par, except the enforced saving and reinvestment of part of income.

## *Chapter VIII*

### IMPORTANCE OF DIVERSIFICATION IN INDUSTRIAL STOCKS

INVESTMENT Underwriting (*i.e.*, the assumption and diversification of risks by the investor) involves two general classes of hazards, one relating to the particular group of risks held, the other relating to the period of time in which they are held. It has, however, three distinct advantages over insurance underwriting:

(1) We may select the exact risks that we prefer and do not have to wait for the risks to come to us or expend sales effort to bring them in.

(2) We may at any time cancel individual risks that appear to have become unhealthy or undesirable and replace them with others. Generally speaking, every form of investment is at any time available to us or may at any time be disposed of at a price.

(3) We may cancel a suitable percentage of all risks in a period of threatened epidemic in which it may not be determinable that this or that security will fall in value but in which it is determinable that the price structure is doubtful, offering a condition dangerous to all values.

Because of these advantages permitting the prompt and efficient revisions of individual risks carried at any time, it is important for us to know almost as much about all of the securities available at any one

time as we know about the specific investment risks that we are carrying in order that our fund may at all times be made up of a diversified group of the most healthy risks. This does not mean that the conservative investor should be continually jumping in and out of the market for small trading profits, but he should be prepared to take advantage of changes in fundamental economic and financial conditions as well as important changes within the various branches of industry and the fortunes of specific companies.

The actuarial studies of investment experience we have made thus far indicate that the element of constant growth has been most fully reflected in a diversified group of industrial common stocks. Although it is not within the scope of these studies to consider anything but the more general aspects of sound investment practice, we might go one step further to inquire into the extent of variation in growth of the stocks representing the 25 or 30 general types of businesses comprising the industry of this country.

#### THE MAJOR INDUSTRIES

Before we are in a position intelligently to analyze individual securities we should first examine each of the major industries as a whole in order to select those groups that are in the most healthy condition and are definitely representative of the growing industry of the country. Diversification is always the most important safeguard for conservative invest-

ment, but the more intimate our knowledge of the nature of the many different investment risks available to us the more intelligently and scientifically can we obtain proper diversification in the more healthy risks.

The importance of diversifying stock investments in the most healthy growing businesses would be clearly emphasized by a comparison of the records of properly devised stock price indexes for the major types of industry during the last few years. The most reliable data available on which to appraise the varying investment experience of recent years that would have resulted from participation in the different major industries of the country have been compiled by the Standard Statistics Corporation and expressed by their index figures for each of 27 groups of stocks for the 10-year period, 1918 to 1928. They originally used for this purpose 201 industrial companies and 31 railroad companies, representing a cross-section of American industry. As a result of consolidations and mergers the number of separate companies now used has been reduced to 228.

The *industrial* stocks have been separated into 26 major groups which are listed on the opposite page in the order of net appreciation from January 1, 1918, to January 1, 1928.

The indexes worked out by Standard Statistics for each of these groups of stocks are based upon the product of total number of shares outstanding in each company and the market price per share. This plan weights each company in the index directly in ac-



(1) Automobile Accessories.....	2219%
(2) Chain Stores.....	769%
(3) Automobiles.....	631%
(4) Food.....	563%
(5) Electric Equipment.....	321%
(6) Mail Order.....	245%
(7) Railroad Equipment.....	214%
(8) Miscellaneous (Industrials).....	209%
(9) Tobacco.....	208%
(10) Farm Machinery.....	203%
(11) Gas, Traction & Power.....	194%
(12) Chemical.....	150%
(13) Paper.....	98%
(14) Metal (Misc.).....	98%
(15) Tel. & Cable.....	85%
(16) Mach. Mfg. ....	78%
(17) Steel.....	73%
(18) Copper.....	51%
(19) Theater (1920-1927).....	44%
(20) Petroleum.....	42%
(21) Tire & Rubber.....	18%
(22) Leather & Shoe.....	- 1%
(23) Coal.....	- 10%
(24) Textile.....	- 12%
(25) Sugar.....	- 15%
(26) Shipping.....	- 73%

cordance with the market value of total shares outstanding and automatically allows for the influence of stock split-ups and stock dividends. The influence of subscription rights is satisfactorily provided for by the necessary adjustments when these rights are issued. Although the Standard Statistics Stock Indexes probably give us a more nearly accurate interpretation of investment experience during the last

few years than any of the familiar stock market averages, these indexes have had three important weaknesses<sup>1</sup> as measures of investment experience:

(1) The weighting of each company according to the number of shares outstanding in some cases gives undue influence to the larger companies. For example, in 1926 the 10 automobile stocks carried showed a gain in value of 33.5 per cent; but in fact only one company, General Motors, gained at all; while the other 9 lost. From the Standard Statistics index of Automobile Stocks for 1926 it might be inferred that an investor in an average group of automobile stocks should have realized a substantial profit, but in fact there was only one chance in ten of picking the one stock that would not have shown a loss. The Standard index does not tell us the gain or loss that a fund equally diversified in each of the 10 stocks would have experienced, but actually such a fund would have shown a loss of approximately 13 per cent for 1926. Furthermore, Ford, the largest factor in the automobile industry for many years and the one suffering the greatest decline in business for 1926, could not be included, which again is indicative of some of the difficulties encountered by the weighting plan.

(2) In some cases the companies are not fairly representative of the group within which they have been included. For example, Fisher Body, now merged in General Motors, is still classed as Automobile Accessory; Allis-Chalmers, largely interested in Electric Equipment, is classed as Machine Manufacturing; and American Agricultural Chemical, confined almost entirely to the fertilizer business which is dependent upon the prosperity of the farmer rather than the manufacturer, is classed as a Chemical. As a practical matter it is impossible to find a sufficient number of representative companies engaged exclusively in the specific lines of business corresponding with Standard Statistics' classifications; but the investor

<sup>1</sup> The Standard Statistics Company has been attempting to work out a plan whereby these weaknesses might be overcome, and their indexes may have been revised accordingly before this book is off the press.

should realize the effect caused by some of the companies that are only partially representative of the group with which they are classed when interpreting the records of the price indexes for these groups.

. (3) No allowance is made for cash dividends paid. This omission favors the low-dividend paying stocks such as Chain Stores and penalizes the higher dividend groups such as Railroad and Mining stocks.

#### DIVERGENT PRICE TRENDS

In spite of these shortcomings of the Standard Statistics indexes they offer us by far the best information that is readily obtainable with respect to the divergent price trends of different classes of common stocks. Our primary interest in the Standard Statistics stock groupings is not the actual movement of the index for each group, but the relation of this movement to the trend of all stocks. That is, if the trend of the index for all 228 stocks has been from 83 in January, 1918, to 195 in January, 1928, and the trend of railroad stocks from 84 in January, 1918, to 158 in January, 1928, we can find the relation of the trend of railroad stocks to the trend of all stocks by dividing one by the other. Thus:

$$\frac{84}{83} = 101 \text{ for January, 1918,}$$

$$\text{and } \frac{158}{195} = 81 \text{ for January, 1928.}$$

If we accept these index figures as a fair portrayal of investment experience and use the index of

all stocks as a base on which to measure the variation of each group index, it appears that railroad stocks have actually lagged about 20 per cent behind the trend in stock values of American industry as a whole. Dollar value of the wealth maintained in railroad shares throughout the last 10 years is 88 per cent *above* its 1918 value, but 20 per cent below what it would have been if maintained in a wide diversification of essential industries.

A fund exclusively in the most successful group, Automobile Accessories, would have enjoyed an appreciation of more than 2200 per cent. Such a fund would represent nearly 1000 per cent more in dollar wealth to-day from concentrating in this most profitable group than would have been realized through maintaining a diversification in all 27 groups of stocks. If the entire fund had been concentrated in the shipping industry, the most unprofitable group, it would have declined about 73 per cent and would to-day have a dollar value only about 11 per cent of what the same fund would have had if diversified in all 27 groups.

Chart XXII illustrates the movement of all 228 stocks (industrial and railroad), from 1918 to 1928. A fund comprised of all these 228 stocks, while carrying diversification to an impractical (and perhaps unprofitable) extreme, nevertheless represents a participation in the underlying growth and development of American industry as a whole. A fund so invested has effectively neutralized the varying fortunes of specific industries and companies, but nevertheless

# ALL STOCKS

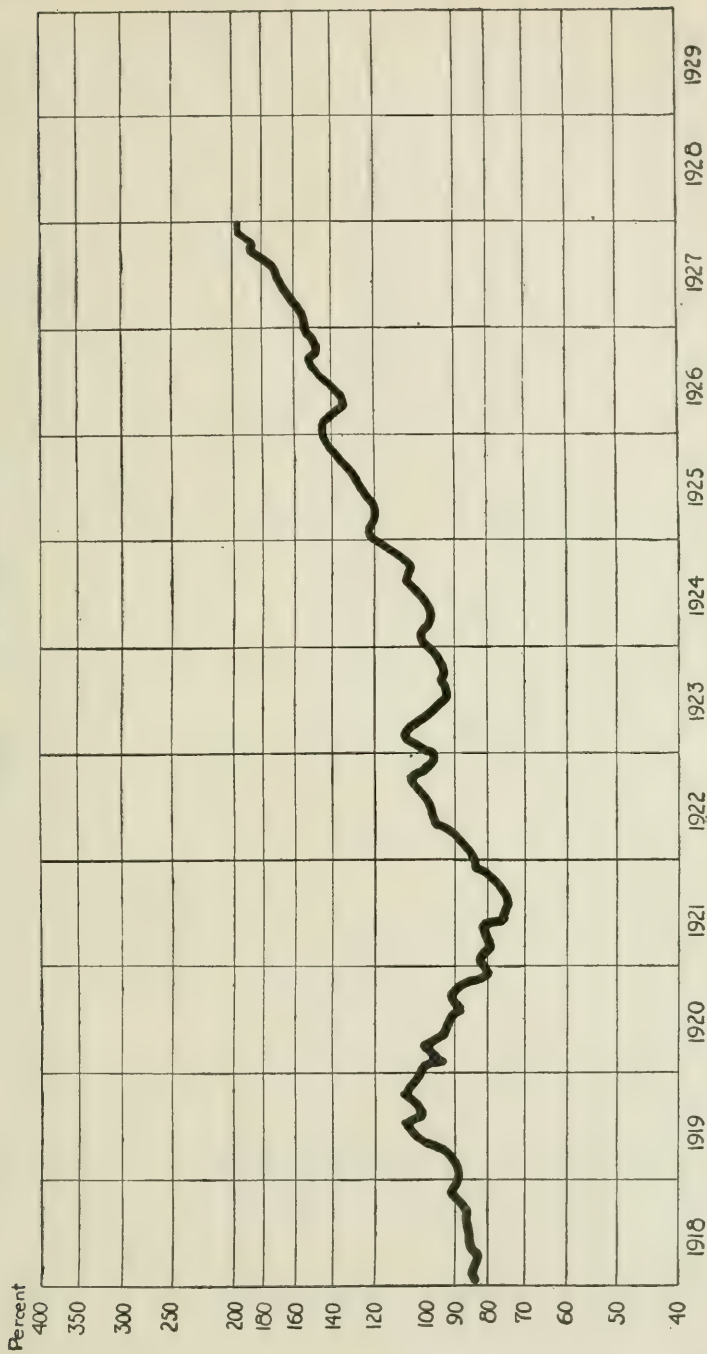


CHART XXII



profited from the long-term upward trend of equity values.

#### THE MOST PROFITABLE GROUP

Chart XXIII illustrates the advantage that would have accrued to a fund concentrated in Automobile Accessory stocks (the most profitable group) over what would have been realized from a diversification in all stocks. That is to say, the trend of the automobile accessory group has been divided by the trend for all stocks. This process has served to flatten out the graph representing all stocks into a straight line (shown as a heavy broken line in these charts). Thus the variation in trend of the automobile accessory group from the base line of all stocks may be computed between any two points of time in this chart by measuring the change in distance between the fluctuating line above the base represented as a straight broken line. The scale at the right of the chart measures the cumulative percentage variation in trends from January, 1918, values. This chart illustrates how, as pointed out above, a concentration in automobile accessories would have produced results almost 1000 per cent better than a fund diversified in all groups.

#### THE LEAST PROFITABLE GROUP

But if the fortunate speculator who took on these automobile accessories in 1918 had instead concluded

# AUTOMOBILE ACCESSORIES

PERCENT  
VARIATIONS FROM  
ALL STOCKS

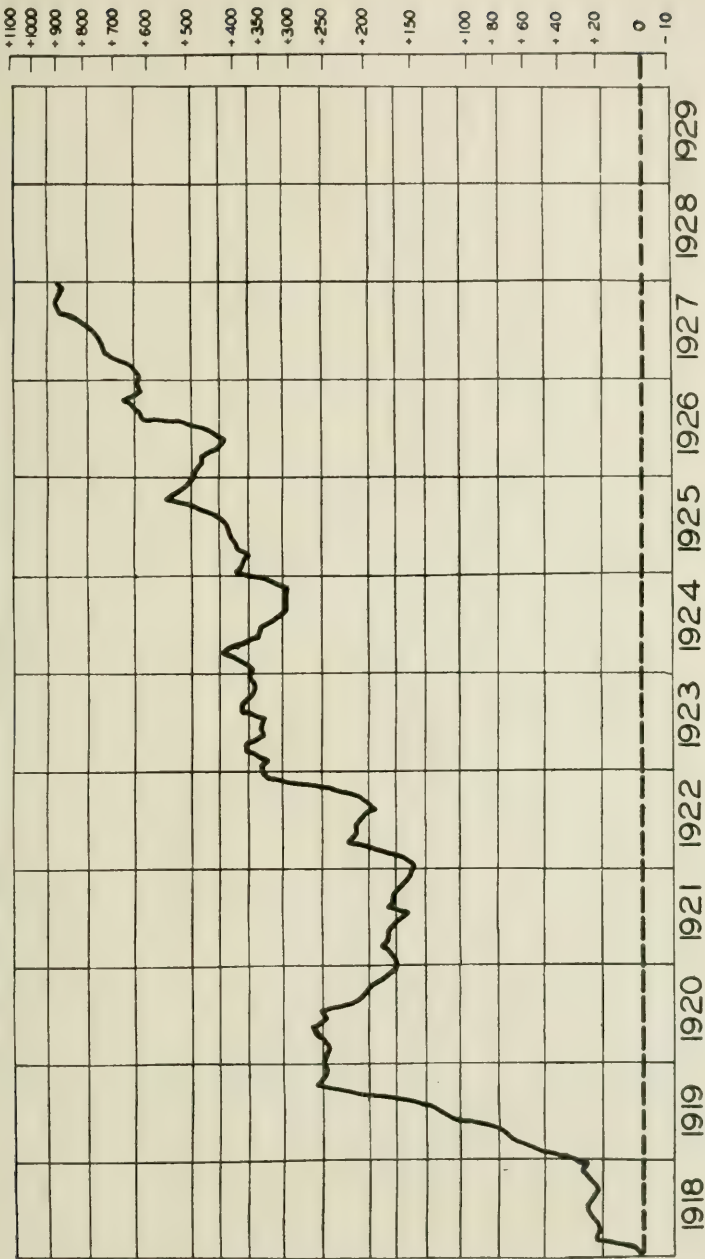


CHART XXIII

to concentrate in the shipping industry because of a belief that this line of business offered greater prospects, he would then have done only 11 per cent as well as the fund diversified in all groups. By reference to Chart XXIV it will be observed that the speculator in shipping stocks might have considered his optimistic judgment confirmed by the market in 1919, since this group at that time had appreciated substantially more than the average. Furthermore, after the pronounced market drop in 1920 and the first half of 1921 the shipping group showed a greater tendency to rise than the average of all stocks. The rate of appreciation for the shipping group during the last half of 1921 and the first half of 1922 was greater than that for all stocks and even greater than that for the automobile accessory group.

#### DIVERSIFICATION THE FUNDAMENTAL SAFEGUARD

It is common practice for investment students in examining past history to remark upon the ease with which the investor of previous years could have concentrated funds in the most rapidly growing industries. It is often stated that the average man must have been aware that the fortunes of certain industries and companies were failing whereas others were improving—that some stocks were greatly overvalued while others were undervalued. But such a statement is little more or less than a paradox. The prices at which stocks are selling represent for the

# SHIPPING

PERCENT  
VARIATIONS FROM  
ALL STOCKS

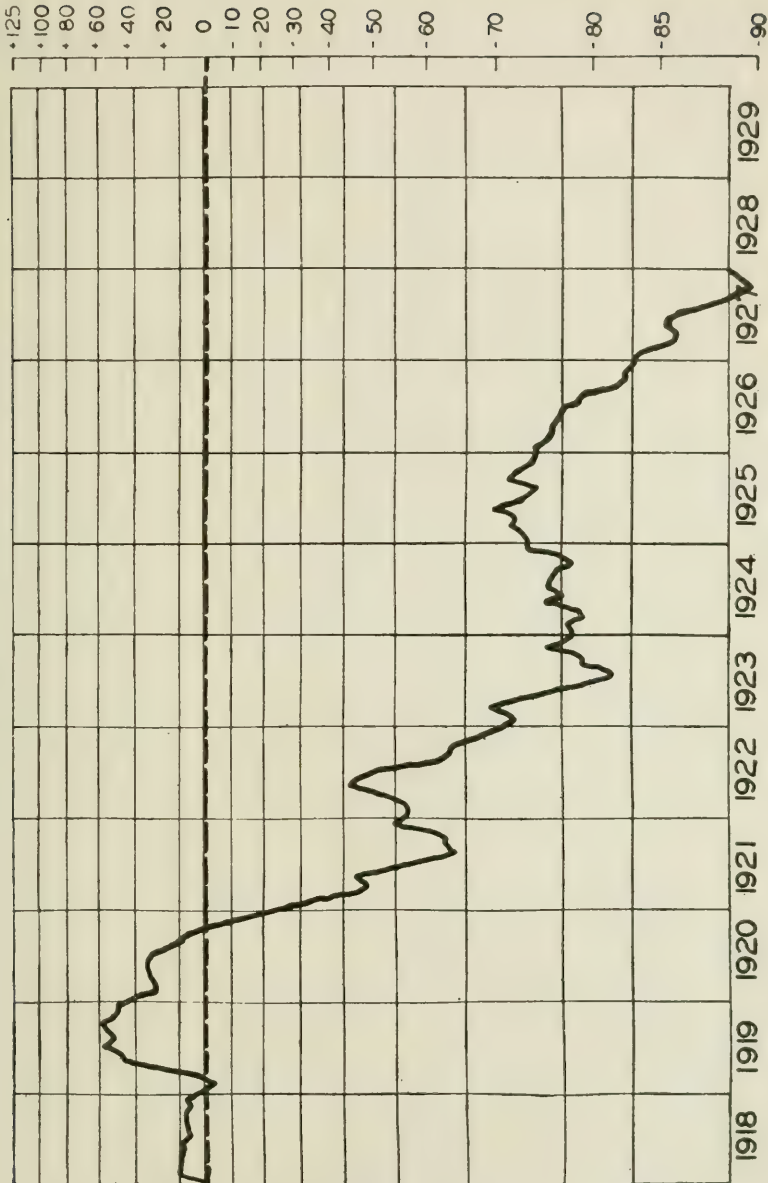


CHART XXIV

most part the opinion of the average speculator and investor interested in those stocks. For every security sold at a price there is a purchaser at the same price. Successful concentration in the risks destined to be most successful requires something more than *average* knowledge and discernment.

The charts of price movements in different types of industries shown in this chapter and in the Appendix have been introduced not as an aid to forecast the future movement of stocks in specific industries but to emphasize the wide divergence in trends of different industries which is an inherent characteristic of these investment risks. And this inherent characteristic of divergence in trend among different industries emphasizes the fundamental importance of intelligent diversification. A careful comparison of the charts shown on pages 397 to 423 in the Appendix and an analysis of the companies comprising each group will bring to light many interesting considerations beyond the scope of this book, particularly as it suggests that while adhering to the fundamental principle of diversification we may attain further rewards through application of intelligent analysis and skillful selection among and within the various classes of investment risks currently available.



## *Chapter IX*

### FUNDAMENTALS OF A CONSERVATIVE INVESTMENT PLAN

A PLAN for conservative and successful investment administration may be approached through careful consideration of several essential requisites:

1. A clear understanding of the major and minor investment objectives sought and of the relative importance of these objectives.

2. Knowledge of the important characteristics of the major types of investment available that may affect these objectives. (These characteristics may be discovered and most effectively analyzed through careful actuarial studies of investment experience over a long period of years.)

3. Recognition of the more important economic and financial forces operating to disturb present investment values.

4. An intelligent investigation and appraisal of the relative conditions of present health and prospects of different classes of industry and of the individual investment risks comprising each of these classes.

5. Maintenance of a constant hedging policy whereby the important investment objectives may be conservatively attained without endangering—by unwarranted reliance upon anticipated events that our limited knowledge may presume to foresee—a reasonably successful long-term accomplishment.

For the purpose of determining the suitability of different types of investment, all investors may be divided into two general classes:

1. Those whose objectives are primarily concerned with maintenance and increase of the dollar value of principal and income. In this group we would have insurance companies, savings banks, commercial banks, and other similar financial organizations.

2. Those whose objectives are primarily concerned with maintenance and increase of the purchasing power of principal and income. In this group we would have individual investors, charitable institutions, universities, and other organizations whose obligations must be met through delivery of goods and services; and investment trusts whose function is to assist such investors in the attainment of their objectives.

#### INHERENT CHARACTERISTICS OF DIFFERENT CLASSES OF INVESTMENT

The actuarial studies that we have made of investment experience covering the last quarter century were undertaken primarily to determine the essential long-term characteristics peculiar to each general type of investment. A brief resumé of the more important characteristics associated with these general classes of investment will aid us in determining in what manner and to what extent each general type is qualified to contribute to the investment objectives sought. Since each type of security has its own peculiar weakness as well as strength it should be our endeavor to combine the several types of investment available in such manner that, through neutralizing the weakness of one by the strength of another, our investment objectives will be most efficiently and safely attained for the fund as a whole.

## FIXED INCOME BEARING TYPES

*Short-Term Bonds*

High-grade liquid short-term bonds, such as U. S. Treasury Certificate 3 $\frac{1}{2}$ s of 1930-32 or Pennsylvania Railroad 4s of 1931, for all practical purposes represent a riskless loan of capital and the yield available is usually little above our estimate of the riskless rental rate. This type of investment provides almost perfect stability in dollar value, but to compensate for this stability the holder must accept a return lower than that available from other types of investment. The short-term bond is eminently a defensive investment vehicle, an anchor and not a sail.

*Long-Term Bonds*

Although ordinarily providing a higher current income than short-term issues, long-term bonds are subject to substantial changes in market value over a period of years. They are, however, governed and restricted in this price movement by the variation in interest rates or yields demanded on long-term bonds. The limits of this more or less mechanical influence have in the past generally been confined between 3 and 7 per cent. We have observed a relative market stability in long-term bond values (as compared with common stocks) over short periods of time, but have

found that the cumulative effect of a continued downward or upward trend in interest rates may result in a gradual appreciation *or depreciation* aggregating as much as 30 or 40 per cent of the principal value originally invested.

### *Mortgages and Collateral Loans*

Over a period of years the average current interest payments realized from this class of investment have been greater than that from long-term bonds; and because of the relatively short term of mortgage and collateral loan contracts the trend of interest rates does not substantially affect their principal value. Except during periods of declining interest rates, mortgages and collateral loans have therefore provided a larger gross return than long-term bonds. The two important disadvantages of this class of investment are (1) lack of marketability and (2) detailed administration required.

### *Preferred Stocks*

High-grade preferred stocks with the fixed-income feature of bonds reflect changing interest rates in their market values in approximately the same manner as bonds of the longest maturity.

Low-grade preferred stocks fluctuate in market value with the changing credit status of the issuing company. Such issues ordinarily offer less prospect for gain and greater possibility of ultimate loss than

the common shares in stronger companies, and therefore have little to recommend them in any soundly managed investment program.

When carefully selected, and regularly and intelligently supervised, the highest-grade preferred stocks may at times serve as an advantageous substitute for part of the long-term bond fund, providing a higher income return that is subject to lower state and Federal taxes, and for some investors, such as insurance companies, is completely tax exempt.

### *Purchasing Power and the Fixed-Income-Bearing Types*

From the standpoint of investors primarily concerned with maintenance of purchasing power, the characteristic attributes of all the above described groups might be summarized briefly as: fixed dollar instruments mechanically restricted in upward price movement, unable to share in the growth and prosperity of civilization, and indelibly stamped with the fluctuating properties of the monetary unit whose value is exposed to a great deal of unfavorable pressure—certainly not ideal offensive weapons themselves upon which to depend for the maintenance and increase of a given purchasing power, yet useful withal as stabilizers for the investment fund as a whole; supplying a steady dollar income in times of depression, increasing in real value throughout deflationary trends wherein the average margin of profit assignable to common stocks is liable to reduc-



tion, and guaranteeing the investor a predetermined number of dollars (though by no means a constant purchasing power) more surely than any individual common stock.

#### EQUITIES OR COMMON STOCKS

Industrial common stocks have displayed a continuous upward long-term trend as far back as we have been able to measure investment experience. Over the past 27 years this upward trend has resulted in a total appreciation of more than 900 per cent. We have found that the primary cause for this long-term upward trend is the practice followed by representative corporations of reinvesting annually in their businesses approximately one-half of total earnings. So long as this practice continues it is logical to expect that the long-term trend of industrial stocks will continue upward. Experience of the past and our study of the basic cause for growth in common stock values indicate, however, that from the long-range viewpoint we must depend primarily upon sound corporations other than public service monopolies for the maintenance of this upward trend.

The essential weakness of common stocks is their violent fluctuation in market value during short periods. In five different years out of the last 27 we have had precipitous declines amounting to more than 25 per cent within the year. Although the Federal Reserve System and other agencies have been operating to lend greater stability to stock values in

recent years, we had a decline of about 15 per cent in industrial stock values in 1923 and a decline of about 10 per cent in 1925. Fluctuations of 4 or 5 per cent in the market value of a diversified group of common stocks may be anticipated at any time as a result of purely technical conditions within the market itself.

We have found that violent fluctuations in commodity prices or the purchasing power of the dollar, such as occurred during and following the World War, are largely reflected in common stock values. Furthermore, increased corporate earnings during periods of rapidly rising prices enable the managements to distribute larger dividend disbursements (in dollars), whereas in a depression with falling commodity prices it has often been found expedient to eliminate extra dividends and sometimes regular dividends have been cut down.

### *Improved Financial Position of Common Stocks*

There is a noteworthy, if somewhat artificial, feature in the high-grade common stock of to-day which has done much to establish it in favor among conservative investors. We refer to the changed methods of industrial management during the last two decades evidenced by the growing tendency of corporate officials to adopt more cautious policies than in the past. The severe depressions of 1907 and 1920 served as useful object lessons for industrial leaders who are now making serious efforts to prevent the

TABLE VII  
HOLDINGS OF CASH AND MARKETABLE SECURITIES  
(000 omitted)

	Cash	Market- able securities	Annual int. pay- ments	Annual div. require- ments		Total Int. and dividends
				Prefd.	Common incl. "extras"	
Allied Chem. ....	\$ 15,733	\$86,338	0	\$ 2,750	\$ 13,069	\$ 15,819
Amer. Locomotive. ....	8,742	27,859	0	2,695	6,160	8,855
Amer. Smelting. ....	10,381 <sup>4</sup>	25,002	\$ 2,507	3,500	4,880	10,887
Corn Products. ....	8,488 <sup>3</sup>	32,349	119	1,750	7,590	9,459
East. Kodak <sup>1</sup> .....	11,636 <sup>4</sup>	28,592	0	370	16,395	16,765
Gen'l Elec. <sup>1</sup> .....	78,602	68,935 <sup>2</sup>	427	2,358	19,829	22,624
Gen'l Motors. ....	132,272	75,904	0	9,109	134,836	143,945
Int'l Harvest. ....	36,896	5,256	321	4,792	6,295	11,408
United Fruit. ....	29,387	1,683 <sup>5</sup>	0	0	9,999	9,999
U. S. Steel. ....	112,867	59,589	24,665	25,220	49,814	99,699

For foot notes see opposite page.

recurrence of such drastic inflationary movements. Inventories are not permitted to become inordinately large and are adjusted constantly to meet current demand. In many cases, also, substantial liquid reserves in the form of cash or marketable securities are maintained as a defense against depressions or dull periods in industry. This policy is pursued not only to minimize business losses, but to insure regular payments of dividends to stockholders, regardless of conditions. Fixed income derived from investments in bonds and other securities will often permit a company to show earnings when its own operations fail to show a profit.

The table on page 200, summarizing the latest published information with respect to surplus investments and the annual interest and dividend requirements of several leading companies, gives striking evidence of the increased financial stability of business enterprise. General Electric, for example, has sufficient cash and marketable securities to enable a continued payment of present dividends on its preferred and common stocks for about 6½ years without any assistance from business earnings. Allied Chemical could do about the same. General Motors and U. S. Steel could meet their annual interest and dividend requirements of about \$140,000,000

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<sup>1</sup> 1926 financial statement; 1927 figures not available.

<sup>2</sup> Not including \$84,634,278 in stocks and bonds in affiliated companies such as Radio Corporation of America.

<sup>3</sup> Including \$2,700,000 demand loans and \$3,395,935 in time loans.

<sup>4</sup> Including \$5,000,000 in call loans.

<sup>5</sup> Not including \$10,000,000 U. S. Government securities in Insurance Fund.

and \$100,000,000, respectively, out of surplus cash and marketable securities for a year and a half before having to call upon business earnings. The other companies are carrying sufficient reserves to provide all interest and dividend payments for from 2½ to 4 years. When other items are accounted for, such as sundry investments, and accounts and notes receivable, it is obvious that these companies are maintaining not only an extremely liberal working capital, but also abundant surplus of cash and fixed-income investments to provide against the ordinary contingencies of industry.

Conservative policies of this nature practiced by the managements of many modern corporations already have exercised a notable stabilizing influence on general business, and in a sense metamorphosed the fundamental nature of common stocks as an investment medium. The stock of a company which has little or no funded debt, adequate working capital, and substantial holdings in cash and liquid securities retains monetary as well as earning power and commodity values. Corporate management for some time past has been setting up a powerful defense in behalf of the common stockholders, all of which helps to explain why many individual stocks in the last few years have reacted relatively little marketwise during a period of reduced earnings, at the same time moving upward sharply in price whenever the business outlook becomes favorable.

It is indeed difficult to gauge by tangible devices the improvement in the position of the common stock



as an investment medium since the beginning of the century. In 1893 securities of only 20 industrial companies of importance were listed on the New York exchange, whereas to-day there are available for the investor a broad variety of industrial, railroad, and public utility stocks whose records offer the strongest kind of evidence of inherent earning power and of basic resistance to unfavorable business and economic conditions. From the investor's standpoint the testing period of the last thirty years has furnished exceptional opportunity for selecting common stocks which, having passed virtually unscathed throughout the depressions of 1903, 1907, and 1920, have demonstrated their prime quality and fundamental strength. The common stock has passed through a period of doubt and experimentation, and is to-day a conspicuous investment instrument.

## *Chapter X*

### INVESTMENT TO MAINTAIN DOLLAR VALUES

THE two objectives (maintenance and increase of the dollar value of principal and income) sought by our first classification of investors are to some extent opposed or mutually exclusive. In some cases, such as commercial banks, the demand for rigid dollar stability may require almost a complete sacrifice of the secondary objective, whereas in other cases the circumstances of the institution may permit a substantial sacrifice in temporary dollar stability in order to promote growth over a period of years by seeking a larger return.

### PROBLEM OF THE SHORT CONTRACT INSURANCE COMPANY

The typical fire, liability, or casualty insurance company falls about midway between these two extremes and therefore presents the average problem of investors of the first classification, to which we may now endeavor to make a practical application of our findings. In this discussion we shall refer to the average fire, liability, or casualty insurance company as the short-contract insurance company to dis-

tinguish it from the life insurance company whose contracts extend over a long term of years.

A superficial analysis of the situation might lead one to conclude that the investment objectives of a mutual company were fundamentally different from those of a stock company. The actual proportions carried in different types of securities by any company, whether mutual or stock, will of course depend upon the particular financial structure of that company but the more important ultimate investment objectives are the same for both mutual and stock companies.

#### THE MUTUAL COMPANY

The management's interest in a mutual short-contract insurance company is definitely and closely allied with that of the policyholders; at least it is the purpose of this form of organization to inspire such mutuality of interest. Even as a practical money-making proposition for the management, assuming that its primary concern is the collection of the largest possible return for its charitable work in a mutual organization, the principal means by which greater monetary satisfaction for its efforts can be obtained is in larger salaries. The salaries of officials of mutual insurance companies ordinarily bear some relation to the amount of business done, and probably the surest way to increase business in a mutual company is by most effectively

serving the policyholders' interests. It would therefore appear that the management's and the policyholders' interests in a mutual short-contract insurance company are practically identical.

The investments of a mutual insurance company are represented by unearned premium reserve and surplus. The unearned premium reserve is the balance of amounts paid in by policyholders, most of which within the next two or three years, or whatever the average contract is, will be absorbed in losses and expenses. As this unearned premium reserve is liquidated by payment of losses and expenses it will be replaced by the premiums for new business *if obtained*. The surplus is the cushion maintained as protection against unusual losses or emergencies. The prime interest of the policyholder in this surplus and unearned premium reserve is that they shall be available in dollars and in sufficient amounts to meet any and all valid claims that may be made, irrespective of the amount of new business that the company may expect to have. After this prime requirement has been satisfied the mutual policyholder also has a definite interest in obtaining his insurance as cheaply as possible, and a larger return from investments may be fully reflected in a lower net cost for his insurance. Probably the policyholders' secondary interest of cheaper insurance or a larger dividend return is the one most strenuously urged upon the management of the average mutual company where the necessary financial stability is perhaps too readily assumed.

The investment objectives of the average mutual short-contract insurance company are, first, that investments shall at all times be available in dollars without sacrifice in value to meet the losses that may result from any emergencies and, second, that there be derived the largest net return from these investments that is compatible with the first requisite of availability and maintenance of dollar value.

#### THE STOCK INSURANCE COMPANY

In the case of the stock short-contract insurance company the policyholders have a claim on the unearned premium reserve, and as a group will be paid the major portion of it; the stockholders own the capital and surplus and any equity that may be left in the unearned premium reserve after the fulfillment of all contracts. The policyholder also has a contingent beneficial interest in the stock company's capital and surplus as well as the unearned premium reserve since this cushion provided by the stockholders would be absorbed by the policyholders in the event of unusual losses or emergencies. In the mutual company the policyholders themselves had to provide the cushion for their protection.

The policyholders' prime interest in a stock company, as in a mutual company, is that investments shall be so directed that dollars will be available immediately and in sufficient amounts to meet any and all valid claims in every emergency. Assuming that



the stockholders' primary interest coincides with that of the policyholders in so far as the former recognizes, from a practical business viewpoint, the necessity of maintaining relative stability in market value of investments as protection against sudden emergencies, the stockholder in addition has a very fundamental business interest in obtaining the largest return from investments that is compatible with the market stability required for the preservation of his business. A stockholder's first concern is that the company shall be in a position to meet all contracts when due and, in so far as an increase in net income from investments does not impair this primary requirement, he is interested in having his company hold those securities which will be most remunerative.

#### INVESTMENT OBJECTIVE OF SHORT- CONTRACT INSURANCE COMPANY

In developing a general investment plan for the assets of the average short-contract insurance company (mutual or stock) we may then take as our major objective:

*Maintenance of market or "dollar" value of the fund as a whole*

and as the minor objective:

*The largest net return obtainable in the form of income or appreciation in principal.*

## SUITABILITY OF SECURITY TYPES

The elimination of real estate, mortgages, and collateral loans from consideration because of their general unsuitability for purely investment purposes, leaves three general types of investment available to the short-contract insurance company to serve these objectives; namely, (1) short-term bonds or cash, (2) long-term bonds and preferred stocks, and (3) common stocks.

High-grade, liquid, short-term bonds or cash is the only one of these three mediums that will unqualifiedly meet the short-contract insurance company's primary investment objective of "maintenance of market or dollar value of principal." The weakness of high-grade short-term bonds or bank deposits is their small income return; and the average company to meet competition and serve the best interests of its stockholders or policyholders will therefore find it advisable to extend at least part of its investment operations into fields offering prospects of a more lucrative return.

The particular financial and underwriting circumstances of each company will determine the percentage of total assets necessary to maintain in short-term bonds or cash in order adequately to protect the major objective. Perhaps in the average fire or casualty insurance company something like 20 per cent would provide reasonable protection against sudden emergencies. Whatever amount is believed proper to maintain in liquid short-term bonds or

cash, this matter must be finally concluded before we can conservatively give any consideration to the secondary objective of high net return. And in appraising other types of investment providing a greater return we must continue to give careful consideration to the major objective of "market or dollar stability of the fund as a whole."

COMPLEMENTARY CHARACTERISTICS OF  
LONG-TERM BONDS AND COMMON  
STOCKS

Do not the two remaining general classes of investment, (1) long-term bonds and preferred stocks and (2) common stocks, pretty well complement each other in their essential characteristics from the standpoint of the short-contract insurance company's major requirement of maintenance of market or dollar value? From our studies of investment experience it was found that long-term bonds have the weakness of a possible long-term downward trend. This may be offset by the definite long-term upward trend in industrial common stocks. The weakness of common stocks has been their violent temporary fluctuations, and this may be offset by the relative stability of bond values over short periods.

Therefore, if our short-contract insurance company demands growth over a period of years, protection from a substantial decline in dollar value of its assets at all times, and a reasonable hedging policy against any eventuality, for every investment in

long-term bonds there should be an equivalent investment in common stocks (most of which should be industrials).

#### IMPORTANCE OF HEDGING

Then if, after straddling both sides of the fence by holding equivalent amounts in long-term bonds and common stocks, we want, like the wily forecaster, to include some sort of loophole so that some time if we choose we may look back and prove to ourselves what a clever investment committee we have been, we might carry a little larger cash fund or short-term bond fund than seems necessary for insurance underwriting purposes. If 20 per cent in highly liquid short-term bonds seems sufficient to satisfy our underwriting requirements, we might add another 15 or 20 per cent to use for investment purposes if and when a favorable opportunity presents itself. The greater current income and the principal appreciation that would gradually be realized from common stock investments over a period of years might not be made up by the ultimate gain from purchases at favorable opportunities if we had to wait too long for these opportunities; but in the meantime the additional short-term bonds would tend further to stabilize the market value of the fund as a whole, an important consideration when our major objective is stability in dollar value of principal.

Thus a typical short-contract insurance company

might normally carry 30 per cent in high-grade short-term bonds, 40 per cent in common stocks, and 30 per cent in long-term bonds and preferred stocks. Occasionally the common stock fund might rise as high as 50 per cent and occasionally fall back to the minimum of 30 per cent, with perhaps an average of 40 per cent. If we should enter a pronounced period of inflation with a consequent heavy decline in long-term bond values, the 20 per cent loophole might be used to take up the slack on long-term bonds by increasing the percentage as high as 50 per cent. The short-term bond fund would concurrently with such maneuvers fluctuate between 20 and 40 per cent.

#### SOME ASPECTS OF THE LIFE INSURANCE COMPANY'S PROBLEM

Superficially it might appear that long-term bonds are the ideal investment medium for the life insurance companies. With their dollar liabilities projected for many years into the future the managements may select bonds maturing at approximately the times and in the amounts that their mortality tables indicate these funds will be required. Furthermore, since their premiums are based on a definite income return from investments (usually 3 or  $3\frac{1}{2}$  per cent), so long as the long-term bond provides this annual return on the original investment and so long as it is redeemed at par on maturity, all of the



requirements of the policy contract have been provided for.

If, however, a large portion of the policyholders should demand the cash surrender value of their policies at a time of relatively high interest rates, or if during a long period of depreciation in the dollar they should become apprehensive because the dollars paid in the satisfaction of claims did not satisfy the fundamental purpose of their insurance policies, namely, assuring the bereaved family the continuance of the standard of living which its breadwinner had provided, then the managements of insurance companies might be forced to give greater consideration to the real needs of their policyholders and not rely solely upon the legal performance of the policy contracts.

It seems rather a paradox that some of the stock-participating life insurance companies through more aggressive investment management may actually be serving their policyholders' real interests more effectively than the purely mutual companies which theoretically operate solely in the policyholders' interests. At least part of the reason for this unusual situation may be found in the fact that the stockholders or the management of the stock company, because of their participation with the policyholders or beneficiaries in the investment return of the insurance company, are interested in the purchasing power of this return as well as its dollar value. They are furthermore concerned with a gradual increase in the standard of living which must be largely pro-

vided out of an increased dollar return in the profits of their company. Thus in so far as the policyholders participate in the benefits of a more aggressive investment administration, the stockholders and management of the stock life insurance company may be serving their policyholders' real interests more effectively than is the management of a mutual company that assumes the traditional trustee attitude of neglecting some of the more fundamental of the beneficiaries' interests in order to insure itself, with as little effort and vigilance as possible, the ability to meet the technical or legal specifications of its trust.

In 1906 the Armstrong Investigating Committee of the New York legislature, referring to life insurance companies, said: "Investment in stocks should be prohibited. . . . Long ago the Prussian Government refused admission to its jurisdiction of any insurance company investing in stocks, and the restriction has been found salutary and not burdensome." Following its recommendation, the legislature enacted into law the policy which about 12 years later was to stifle the German life insurance business after it had managed successfully to weather a disastrous war. If these German life insurance companies, instead of having all their reserves invested in bonds, had had a substantial proportion in the shares of leading German industries, they could have discharged their entire liabilities with ease. What is more, they could have paid out in satisfaction of claims an amount in the medium of exchange that

would have provided the beneficiaries of these policies with at least a fair part of the purchasing power which they fundamentally required. As it turned out, however, the assets of these life insurance companies remained fixed in marks and dwindled to practically nothing in purchasing power value, and their expenses of operation became so high in marks that it cost more to make collection and record the premiums received than the total amount involved.

When the life insurance companies, technically and legally interested in nominal or dollar value, begin to undertake the problem of insuring a constant purchasing power income—or what the average policyholder in the past may have believed was being insured when his family was guaranteed the payment of a specified number of dollars at his death—largely depends upon the pressure that is brought to bear upon the managements by the policyholders themselves. When the policyholder has convinced the managements of insurance companies that it is maintenance of purchasing power and a continuance of the standard of living for his family that he wishes to have insured, the managements must then recognize that the payment of a fixed number of dollars in satisfaction of policy claims will not provide the protection sought.

When the progressive insurance company, by careful and intelligent administration of an investment program serving the real needs of its policyholders, is enabled to return larger dividends and satisfy its death claims with payments enabling the

beneficiaries to maintain the standard of living for which the insured sought protection—then the pressure of competition may force the traditional practices of all life insurance companies to be revised somewhat.

The many far-reaching considerations involved in the conservative and enlightened administration of the life insurance business are, of course, beyond the scope of this book. Some evidence of the present tendencies in investment practices of life insurance companies, however, may be found in portions of an address by Mr. T. B. Macaulay, president of the Sun Life of Canada, the largest life insurance company in the world outside of the United States. At one of their agency meetings about a year ago he gave some interesting sidelights on the investment policy of this company, from which the following excerpts have been taken.

“If you turn up actuarial textbooks you will find that they mention but three great sources of profit to a life assurance company. The first is the amount that can be saved in the way of expenses out of the loading on the premiums; the second is the saving in mortality, by being able to secure a lower death rate than that shown in the table; and the third is the amount of excess interest which can be earned on the investments beyond the rate estimated in the calculation of its reserves.

“But, gentlemen, we have discovered and developed a fourth source of profit, and it is due to that fourth source more than to anything else that we have had our great additional earnings. If, like most companies, we had invested our funds chiefly in mortgages, we would have had only the excess rate of



interest; but as it is, we have made a profit on our investments, profit as distinct from mere excess interest. That profit has run into millions and millions. It ran into many millions last year and it will run into many millions again this year.

"I would not have you suppose for a moment that we speculate, for we do not. That is one thing we will not do. When we buy securities we buy to keep, regardless of market value fluctuations. Almost the only condition that ever induces us to sell is when a bond rises to such a high premium that the interest yield on the market price is low, and it becomes more profitable to sell and reinvest in something else.

"We hear much in actuarial circles about mortality and we devote time and thought to the study of selection in order to make as large savings as possible in the amount of our death claims, and this is extremely important. We now devote similar time and thought to the study of the investment problem, and, gentlemen, the rewards are almost beyond belief. For the solving of this great problem of safe and profitable investing we have a large, highly organized and very efficient treasury department, the officers of which have devoted themselves to these studies for many years. . . .

"But, you may ask, have not all companies equal opportunities in the investment field? As regards bonds, practically, yes; but as regards stocks, no. The law of the State of New York prohibits all life insurance companies licensed by it from purchasing stocks of any description, even the preferred stocks of the most outstanding corporations, which are in reality much safer and better than many of the bonds they are permitted to buy.

"Our Canadian law is, in my opinion, much more wisely framed and allows a reasonable scope for investments. Like other laws it authorizes purchases of bonds, but unlike them it does not prohibit purchases of stocks, but imposes restrictions. . . . The restrictions are wise and desirable and yet they allow the companies a reasonably wide field. . . .



"Then we come to common stocks, and I will try to give you an idea of our policy in regard to them. I wish you all to know the real principles that guide us.

"As to common stocks and, in fact, all stocks, when making our selections we always have in mind the distant future, choosing only those companies whose past record, strong position, and large, stable, and steadily increasing earnings make it almost a foregone conclusion that the position of the company and the value of its stock will in ten years be even higher than at present, and in twenty years higher still. We are extremely cautious and conservative in making our selections, but when we have once bought, we retain our holdings indefinitely regardless of market fluctuations, looking for our profit not in the Stock Exchange but in the steady growth and gradually increasing prosperity of the corporation. If, for example, a company occupies an outstanding position in some stable and necessary line of business, and year after year is earning ten per cent or more on its capital and only paying six per cent, then we reason that not merely is the dividend reasonably secure but at some time in the future the stockholders will benefit from those excess earnings; and if the business continues to grow with the growth of the country, so much the better. We consider this merely wise investing, and something very different indeed from speculation."

As of December 31, 1927, the Sun Life had approximately \$163,000,000 in common stocks as against \$145,000,000 in bonds and preferred stocks. It is the largest holder in the world of American Telephone stock and among the largest holders of other important utility stocks, such as Commonwealth Edison of Chicago, Detroit Edison, Consolidated Gas of New York, Public Service of New Jersey. It is one of the largest stockholders of General Electric; but generally speaking the investment com-

mittee has been partial to the public utility light and power companies. We caught sight of the roof on public utility stocks during the war period and we may sometime see it again, but perhaps by that time the Sun Life will be more favorably inclined toward industrial stocks. They are an unusually shrewd and far-sighted group of men, and in the writer's opinion take the lead as sound investors among the life companies.

It is hoped that sometime our state legislatures will appreciate the suitability of common stocks for a portion of the investments of a life company when carried under proper restrictions, and that our present antiquated laws in this respect may be revised before foreign companies find it possible to take away a big share of the business of our American companies because they are permitted to take advantage of—rather than suffer from—American prosperity as reflected in stock values. This privilege, through antiquated legislation, is now denied many of our own companies.

## Chapter XI

### INVESTMENT TO MAINTAIN PURCHASING POWER

THE obligations or liabilities of the average financial institution are usually defined by statute or circumscribed by the institution's own by-laws in terms of the fluctuating medium of exchange. The average individual, however, must go beyond this in the development of a suitable investment plan and give careful consideration to the ultimate effectiveness of this fluctuating medium of exchange in maintaining his standard of living. It is because of the greater simplicity of the financial institution's general problem that it was taken up first. We are now ready to consider some of the more practical aspects of a conservative investment plan for our second class of investors who are primarily concerned with maintenance and increase in purchasing power.

#### *The Effect of Changing Purchasing Power of the Dollar*

So much has been written during recent years about the fluctuating purchasing power of the dollar<sup>1</sup> and its subtle yet disastrous or fortunate effect upon

<sup>1</sup> See especially the exhaustive work of Irving Fisher, of which *Stabilizing the Dollar* published by Macmillan has perhaps been most popular, and *The Money Illusion* is now in preparation.

business men, wage earners, and investors, and the people of this decade have been so forcibly hit by the violent gyrations in purchasing power of the mediums of exchange of most of the important countries of the world that it seems superfluous to elaborate further upon this matter and its fundamental importance to the investor. It may, however, be interesting for us to observe at this point the history of the two general types of securities that we have been studying in units of purchasing power rather than in units of dollars. Chart XXV shows our index of industrial stock values and our index of all bond values after each has been divided by the United States Department of Labor commodity price index. We have taken the purchasing power of the dollar in 1901 (the year when our study began) as 100, so that the chart depicts the comparative history that two funds, each of 100 units of purchasing power in 1901, would have had if one had been maintained in the Dow-Jones industrial stocks and the other in bonds distributed among the Dow-Jones railroad, public utility, and industrial issues.

During the three years, 1901 to 1904, the principal of the industrial stock fund with riskless rental rate withdrawn would have declined over 40 per cent in purchasing power, whereas the principal of the bond fund similarly calculated would have declined only slightly in excess of 10 per cent. In the one year, 1904, the industrial stock fund was more than restored, reaching approximately 105 per cent of the

per cent

per cent

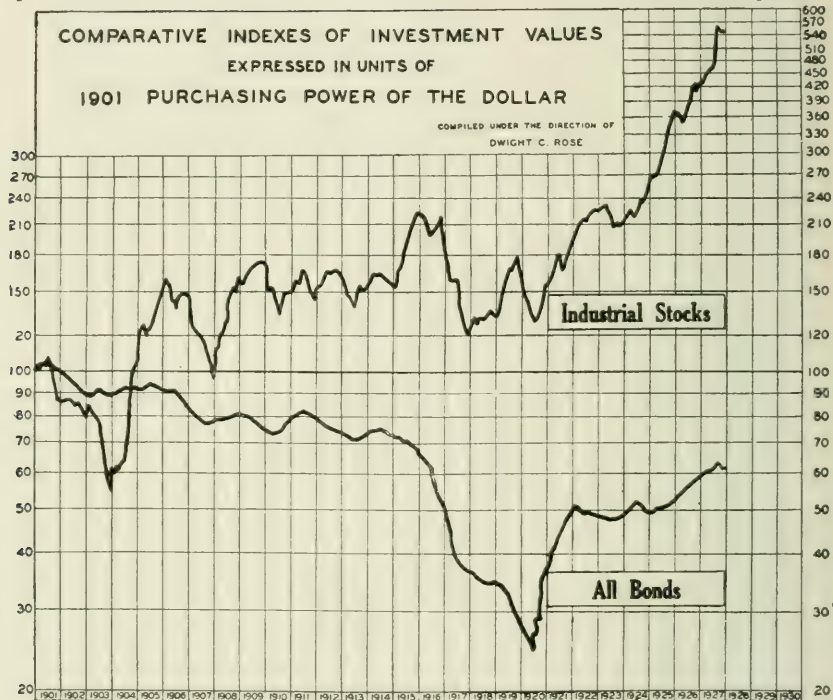


CHART XXV



1901 purchasing power by the end of the year. The purchasing power of the bond fund increased slightly, but was still about 8 per cent below the 1901 value at the end of 1904.

From this point on, with the exception of temporary improvements in 1908 and 1910, the bond fund showed a continuance of the gradual decline in purchasing power aggregating something over 25 per cent by 1914. In the same period the industrial stock fund showed rather violent temporary movements, but in general an upward trend aggregating something over 150 per cent of its 1901 purchasing power by the latter part of 1914. At the end of 1915 the purchasing power of the industrial stock fund further increased to 215 per cent, whereas the bond fund declined to something under 70 per cent of its 1901 purchasing power.

From the beginning of 1916, however, the purchasing power of the industrial stock fund showed a marked decline, reaching 120 per cent at the end of 1917; and the bond fund showed an even more precipitous decline in purchasing power, reaching about 37 per cent of its 1901 purchasing power at the end of 1917.

From the beginning of 1918 to the last quarter of 1919 the industrial stock fund appreciated in purchasing power to about 180 per cent, whereas the bond fund further declined to about 30 per cent. From this point until the middle of 1920 the industrial stock fund depreciated to about 130 per cent of

the 1901 purchasing power, and the bond fund fell to about 26 per cent of its 1901 purchasing power. In the year and a half from the middle of 1920 to the beginning of 1922 the industrial stock fund more than regained the purchasing power lost in the previous year and a half and rose to 190 per cent of the 1901 purchasing power. The bond fund, however, gained all that it lost in the preceding three and one half years and rose to slightly over 50 per cent of its 1901 purchasing power.

Since the beginning of 1922, while the purchasing power of the dollar has remained relatively stable, the industrial stock fund has displayed a pronounced and (with the exception of a temporary decline in 1923) an almost continuous appreciation in purchasing power, reaching approximately 480 per cent by the first part of 1928. Purchasing power of the bond fund declined gradually during 1922 and 1923 from 50 per cent to about 47 per cent, but from that time on has shown a general upward tendency in purchasing power, reaching approximately 65 per cent at the beginning of 1928.

#### TRENDS OF PURCHASING POWER AND DOLLAR VALUES COMPARED

By comparing this chart of industrial stock and all bond values expressed in units of purchasing power with Chart XX, where the same values are expressed in dollars, we observe some interesting dif-

ferences. The variations in bond values from 1916 to 1922 are much more pronounced in terms of purchasing power than they were in dollars. The extent of variation in industrial stock values does not become appreciably lessened when expressed in units of purchasing power, but there is a change from an upward to a downward trend for this period of 6 years.

From the beginning of 1916 to the middle of 1920 the purchasing power of the all bond fund declined twice as much as that for the industrial stock fund, but during the ensuing year and a half to the beginning of 1922 the purchasing power of the all bond fund appreciated twice as fast as the industrial stock fund. The purchasing power of the all bond fund appreciated about 100 per cent during this year and a half, whereas the industrial stock fund appreciated only about 50 per cent.

The dollar appreciation of the industrial stock fund in 1916 becomes a depreciation in purchasing power and the pronounced dollar appreciation in 1918 and 1919 is cut approximately in two when expressed in units of purchasing power. It is readily apparent from only a superficial study of this chart however, that during the last 28 years—when we have had deflation as well as inflation—common stocks have afforded better protection to those primarily concerned with maintenance and improvement in their standard of living, than have long-term bonds.

THE EFFECT OF A GRADUAL INCREASE  
IN OUR STANDARD OF LIVING

Not only is the individual investor interested in retaining the purchasing power of his original investment, he must in addition seek to augment his purchasing power by every safe and effective means available in order to keep pace with the gradual increase which is taking place in the standard of living. Fifty years ago our fathers and mothers managed to live very comfortably without many things which we have now come to regard as necessities. In 1870 a man who had an income of \$5,000 a year was relatively well-off. Certainly he could live very much better than the man of today receiving a similar income. Since the purchasing power of the dollar is approximately the same today as it was in 1870, the explanation lies chiefly in the fact that our standard of living has changed. We demand today an enormous variety of goods and services; discoveries and inventions have furnished new uses for basic materials and have provided us with many new commodities which we have been quick to adopt not merely as innovations, but as essentials to a well-ordered life.

It is difficult to measure with anything like mathematical accuracy the advancing rate in our standard of living, but Mr. Thomas F. Woodlock, secretary of the American International Corporation, in the *New York Evening Sun* of May 5, 1924, offered an inter-

esting commentary on this problem. There he stated in part: "Man is a thing-making and a thing-collecting animal. What people call 'modern civilization' is merely a matter of things. Things are countable and weighable, and they are transportable. Transportation of things is probably as good a measure of modern civilization as is any other." Mr. Woodlock then proceeds to outline what he calls the "thing quotient" by means of calculating the tons of freight carried one mile every day for each individual in the country. These figures, which we have brought up through 1927, are shown on the following page and present, if not an index, at least a formidable indication of the growth in the consuming power of the people in this country since 1894.

In 1927 over 12 tons of material were hauled one mile per capita per diem, or more than three times the amount of tonnage required thirty-odd years earlier in 1894. It will be noted that each decade showed a decided increase in ton miles per capita per diem, and although it may appear an elaborate civilization today in which approximately 25,000 pounds of material are carried one mile every day for every person, it is altogether probable that this figure will in turn be exceeded by an ever-increasing margin in the years to come, particularly if we include the increasing transportation by motor truck and perhaps by airplane.

These considerations can hardly fail to justify a conclusion that if we desire to maintain our relative wealth we must not only protect our principal



*The "Thing Quotient"*

Year	Ton miles of freight per capita per diem	Year	Ton miles of freight per capita per diem
1894.....	3.92	1911.....	9.03
1895.....	4.08	1912.....	9.25
1896.....	4.48	1913.....	10.42
1897.....	4.39	1914.....	9.82
1898.....	5.14	1915.....	9.29
1899.....	5.51	1916.....	11.36
1900.....	6.21	1917.....	12.99
1901.....	6.30	1918.....	13.15
1902.....	6.60	1919.....	11.65
1903.....	7.16	1920.....	13.04
1904.....	7.04	1921.....	9.57
1905.....	7.38	1922.....	10.45
1906.....	8.38	1923.....	12.56
1907.....	9.02	1924.....	11.67
1908.....	8.17	1925.....	12.05
1909.....	8.04	1926.....	12.74
1910.....	9.24	1927.....	12.17

against the encroachment of a fluctuating and, at times, a distressingly weak dollar, but must also apply ourselves to the task of continually increasing the purchasing power of that principal in order to offset the upward trend in the standard of living which apparently is destined to characterize our civilization in the future as it has in the past. Protection and gradual increase of purchasing power are our objective, and let there be no doubt as to the urgent need for aggressive direction and administration in investment to attain that objective. As in much else, a good offense is the best defense.

## VARYING ELEMENTS AFFECTING DIFFERENT INDIVIDUALS

It is impossible to outline in a short treatise of this sort any general investment plan that will be suited to the many varying circumstances of individuals seeking maintenance and increase of their purchasing power. Some of the factors influencing the proportions of different types of securities required in an individual's investment plan for the most effective management of his estate as a whole are:

1. Income from business and the nature of his business or profession.
2. Other income from trust funds, etc.
3. Age.
4. Number and age of dependents.
5. Amount of life, sickness, and disability insurance carried.
6. Amount of income that is being saved.
7. Probable duration of present income and likelihood of an increase therein.
8. Amount of real estate held, including mortgages placed thereon.
9. Inheritances which may be expected.
10. Special taxation problems.

The individual's productivity is an important part of his total wealth. Such earning power represents a capital investment which may be calculated to measure the approximate value of the individual whose labor produces this annual income, and the rate at which that earning power may be capitalized

depends upon its probable duration or permanency.

Whether capitalized earning power should be treated as an equity or as fixed-income-producing wealth depends primarily upon its stability. For example, the salary of a railroad executive represents a different type of income than the earnings of a locomotive salesman or a partner in a commercial firm. The former is more stable and being fixed in dollars reacts to changing conditions in the same manner as the income from bonds. The latter fluctuates with business conditions in the same manner as an equity, but if this income is well protected by life and disability insurance, a portion of the capitalized earnings may be conservatively treated as a form of fixed-income-bearing wealth.

If earning power is largely protected by insurance and if there is a comparatively large return from investments in addition to earned income, it would probably be conservative practice to capitalize a substantial portion of it as a bond equivalent. If, on the other hand, there is no insurance, it may be advisable to omit consideration of the individual's earning power or, in any event, capitalize only a small portion of it as fixed income.

With reference to real estate, each holding must be considered on its own merits, but in many cases it would probably be logical to treat approximately one-half the value of such real estate (less any mortgages outstanding thereon) as fixed-income-bearing wealth, and the other half as an equity fluctuating in

market value and income with changing economic conditions.

In treating wealth other than that invested in securities, an accurate division into equities and fixed-income-bearing capital is not usually possible, but even if in some cases an arbitrary division of individual items may be necessary, a conservative approximation can usually be determined in order to establish a working basis.

An analysis of the total wealth of the individual by segregating and grouping the more important functional elements provides a sound basis of approach and makes possible a clearer conception of the position of the fund as it relates to general economic conditions and to the requirements of the beneficiary. Of the three classes—(1) cash or short-term bonds, (2) fixed-income-bearing wealth of long or indefinite maturity, and (3) equities—each performs a separate and distinct function for an estate, and the existing proportions of total capital invested in each class should be calculated as closely as possible in order to determine the fundamental relationships between the constituent elements.

By examining the component parts of an estate from this point of view its true condition can be intelligently studied and revised. After the general structure has been planned a selection of the individual securities may be made which will establish the proper balance and correlation between the various functional processes in such a way as to place the fund in a position to take advantage of existing

economic and financial conditions and at the same time to satisfy the particular needs of the individual investor.

#### SUITABILITY AND SELECTION OF SECURITIES

The particular circumstances surrounding individual investors have such an important bearing upon the specific investment program adapted to their requirements that an attempt to recommend within the space of one chapter any general set of proportions in the different types of securities as adapted for the "average" investor would probably lend only greater confusion to the issue. In some cases nothing but common stocks should be held in order to complement other factors in an individual's estate, whereas in other instances a concentration in bonds might be the more conservative procedure. In the majority of cases, however, it will doubtless be found that some combination including (1) short-term bonds, (2) fixed income-bearing securities of long or indefinite maturity, and (3) common stocks, will be required to provide the desired protection and to serve the investor's needs most effectively. The second group, however (fixed income-bearing securities of long or indefinite maturity), might advantageously be omitted from the holdings of many younger individuals aggressively striving to build up their estates.

Common stocks, like razors, are dangerous



weapons in unskilled hands, but when carefully and skillfully used are highly effective tools for their respective purposes. Even without skillful supervision, if reasonable intelligence is employed to maintain wide diversification of the leading companies in the leading industries, the inexperienced investor can from the long-term viewpoint do a very creditable job. Without the assistance of extensive research and experience such an investor should give little consideration to the comparative prices at which different stocks may be purchased at any given time; he should simply maintain a wide diversification of the most healthy risks irrespective of comparative market values.

Experience has adequately demonstrated that in the majority of instances market prices are a better index of comparative values than the opinion of the individual investor who usually is in possession of only superficial information on which to base his judgment with respect to specific companies. He will therefore be pursuing a more conservative (and probably more profitable) policy by adhering to the fundamental insurance principle of diversification in a group of healthy risks with little regard to the apparent cheapness or dearth of specific issues.

In selecting or revising such risks the investor is vitally interested in three fundamental questions:

1. Is the company a leader in an essential industry that offers prospects for continued growth?
2. Is the company in a present comfortable financial condition as shown by its last balance sheet?

3. Is the management capable, as demonstrated by the records of its annual earning statements and balance sheets over the period that the present management has served?

If his answer to all three of these questions is "yes," the stock has qualified as a "healthy" risk.

Long-term bonds require much less supervision than stocks. But here again the investor should follow the fundamental principle of diversification. However, because of the greater fluctuations in earnings of industrial companies, from which as a bondholder he may suffer in the event of a substantial decline—but cannot profit to an equivalent extent from substantial increases—public utility and railroad issues appear better suited to the requirements of the fixed-income group, particularly when the equity group has been concentrated in industrial companies.

The investor maintaining a substantial commitment in common stocks should not ordinarily strive for an unusually high yield from his bonds. Adequately secured seasoned issues, selling well below their call prices, regularly traded in on a major exchange and providing a moderate yield in sympathy with current interest rates, should be acceptable.

The investor participating in new bond or stock issues is incurring greater risks because the market's opinion of the worth of such new issues has not yet been determined, and too great emphasis on the consideration of the particular new issues that happen to be available is likely to hamper the maintenance

of the fundamental condition of diversification that is essential to conservative investment practice.

Short-term bonds should be of unquestioned security and of high liquidity. Ready marketability is of paramount importance for such holdings, and the investor should be willing to sacrifice something in yield to insure this liquidity under any conditions, since it is probable that circumstances will be unusual at the opportune time for utilizing elsewhere the capital that has been conserved in this short-term fund.

#### IMPORTANCE OF HEDGING

When embarking upon an investment program the investor would, of course, like to know what is going to happen in the future with respect to interest rates, general business prosperity, and other factors that have a bearing on the immediate trend of security prices. If interest rates are going down, he would buy long-term bonds; if up, short-term bonds. If general business prosperity is to suffer a temporary setback in the near future, he would withhold until that time making his maximum commitment in common stocks. It is a simple fact, however, that the current market values of the different types of securities reflect the resultant of all the opinions of the vast army of investors and speculators studying these conditions as to what the future holds in store. When more of this army believe that the outlook is improving, prices go up; and when the majority be-

lieve that the outlook is becoming more precarious, prices go down.

The rôle of professional investment forecasters is indeed a unique one. Their batting average on *unqualified* predictions has been little, if any, better than 50 per cent over a period of years. But since they have realized the fallibility of human judgment, as well as the fundamental importance of being right for the success of their business, they have developed into painstaking rhetoricians; they are today perhaps the country's outstanding experts in the clever art of verbal hedging. They speak like the Delphic oracle, which was always right but whose qualified predictions were of little practical value.

Although it would be dangerous to base any investment program upon the ability of even the most eminent men to forecast the immediate movements of stock prices, commodity prices, interest rates, etc., we can nevertheless recognize a major depression in stocks or bonds if, and when, it arrives. If, therefore, we had maintained a moderate portion of our wealth in cash or its equivalent up to that time, we could then certainly buy securities at prices substantially lower than would have been demanded prior to the drop. Furthermore, if this decline should happen to ensue shortly after embarking on an investment program, our stable short-term bond fund—providing as it does the ability to buy other securities at reduced prices—would tend to compensate for the temporary “losses” on the commitments made at higher prices.

Then also the ready availability of cash for business or sudden personal or family demands, without sacrificing our general investment position (perhaps at a time of depressed market values) provides a comfortable sense of security and the means for a more efficient and unhampered management of current business and family problems.

The proportion of total wealth that the conservative investor should maintain in cash or its equivalent under varying economic and financial conditions involves a number of complicated factors. If he were concerned only with the *long-term trend* (15 or 20 years, say) experience of the past and our studies of the inherent characteristics of different security types strongly indicate that a well-diversified group of common stocks exclusively (for the most part industrials) would effectively serve his purposes. As a practical matter, however, 4 or 5 years of lower prices that may again, as in the past, occur in a well-diversified group of common stocks is a serious matter for most investors.

It is all very well for the statistician and theorist to tell us that we should not view such *temporary* conditions with alarm, but any investor who has watched the value of his estate suddenly drop 20 per cent or more, and then continue a further slow but disquieting falling off for months and months that is finally extended perhaps into several years, realizes that his peace of mind and sense of security—one of the essential benefits to be derived from the possession of an adequate surplus—is seriously upset dur-



ing such a period. The conservative head of a family at such a time is inclined to cut down on his standard of living, perhaps at just the period when the happiness and welfare of his family require the largest expenditures. And the business man may be influenced to adopt a policy of extreme economy in his business during the period when expansion of his facilities might be most effectively undertaken.

This psychological aspect of the matter is somewhat intangible but it is, nevertheless, real and important. While it is reasonable to believe that our increased knowledge of current business conditions and a more intelligent understanding of the fundamental elements in our financial and economic life may serve to moderate future periods of inflation as well as deflation, and unwarranted optimism as well as unreasoning pessimism, yet the conservative investor is hardly justified in expecting the upward trend of stock values to continue without a major interruption as it has for the past eight years. *The investing public in the year 1929 has a dangerous immediate background of optimistic history and success upon which to construct a conservative investment program.*

Furthermore, the mistaken predictions of our greatest financiers of earlier years should warn us of the danger of relying too completely upon any presumption of the future. Interpretations of past investment history from the contemporary viewpoint of practical and intelligent investors during those years cannot help but impress us with the signifi-

cance of the somewhat cynical remark that "It is always the unexpected that happens." It is essentially because of its contribution to a current feeling of security and to the general flexibility of an estate that the average investor is encouraged to maintain a portion of his holdings in a group of highly liquid short-term bonds at all times except a period of unusual opportunity for stock or bond purchases, or when unusual business or personal requirements cannot be readily met through liquidation of other holdings without prejudice to his long-term investment position.

A diagrammatic outline (Chart XXVI) of the fundamental principles underlying a conservative investment plan for those primarily concerned with the maintenance and increase in their standard of living will be found on the following page.

#### INVESTMENT PRINCIPLES IN PRACTICE

Rather than to suggest a theoretical set of proportions for the "average" investor, embodying the general principles that we have discussed, it should be more illuminating for the reader to observe just how these principles have worked out when followed within the limits of human ability and foresight.

Any plan for successful investment developed after the experience is known will, of course, work out over the past because it is knowledge of this past that is usually the dominant factor in building such a plan. The great majority of schemes for forecasting market

THE INVESTOR'S OBJECTIVE  
is to maintain and to increase  
his relative wealth and purchasing power

TWO OBSTACLES  
in the attainment of his objective

The fluctuating Purchasing  
Power of Money

The constant Increase in the  
Standard of Living

and

ARE OVERCOME BY  
his individual productivity, and by

Investing in money through loans,  
bonds

Investing in Utility Wealth and  
productive enterprise through  
ownership of common stocks

Exchanging short-term bonds or  
cash for common stocks or long-  
term bonds, or vice versa, in  
accordance with fundamental  
changes in business and financial  
conditions

Always recognizing the limitations in investment knowl-  
edge and utilizing in every instance the mechanical  
protection provided by

THE LAW OF AVERAGES

CHART XXVI

movements work out almost perfectly over the known past, but they usually cease to function satisfactorily when we apply them to the unknown future. And so the reader is justified in asking, "How will these principles work in practice?" The only complete answer to this question is "Wait and see!" But the next best answer would be to review the history of one or more funds where the principles in question have actually been applied under "working conditions."

In Charts XXVII and XXVIII has been depicted the actual experience of what the author believes to be the first estate that has continuously and conscientiously followed the general investment principles herein recommended. These charts illustrate the changes in amounts carried in the different types of securities each year and the actual accomplishment attained by attempting to follow out the conservative investment principles we have discussed and illustrated in the diagrammatic outline of Chart XXVI. It should be observed that the history starts at the height of the 1919 inflation and includes the severe depression of 1921.

The objective of this particular fund was the building up over a period of years of a permanently higher income. The demands of the beneficiaries called for the largest possible income in the future at the sacrifice of immediate return. At its inception the fund was invested in a relatively large amount of unmarketable securities, and a revision along lines

## INVESTMENT PRINCIPLES

### PRINCIPAL

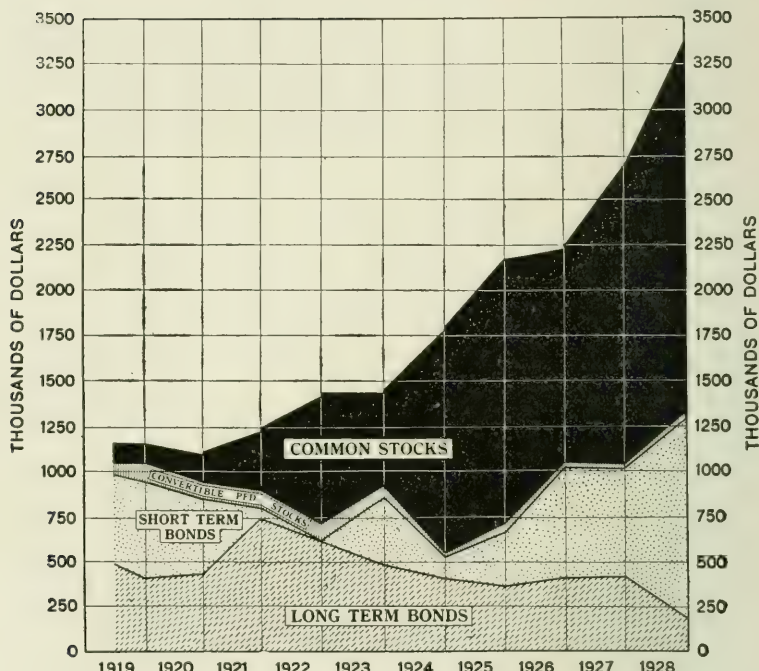


CHART XXVII (1)

This chart records the actual market value of the estate at the end of each year, and the varying proportions invested in each class of security are indicated by the changes in areas. Annual revisions of holdings have averaged about 30% of the principal.

Since the only amounts added to the estate during the period represented minor reinvestments of income (indicated by the breaks in the top line), the appreciation of principal is substantially that shown by the upper line.



## IN PRACTICE

**INCOME**  
(YEARS ENDED JUNE 30)

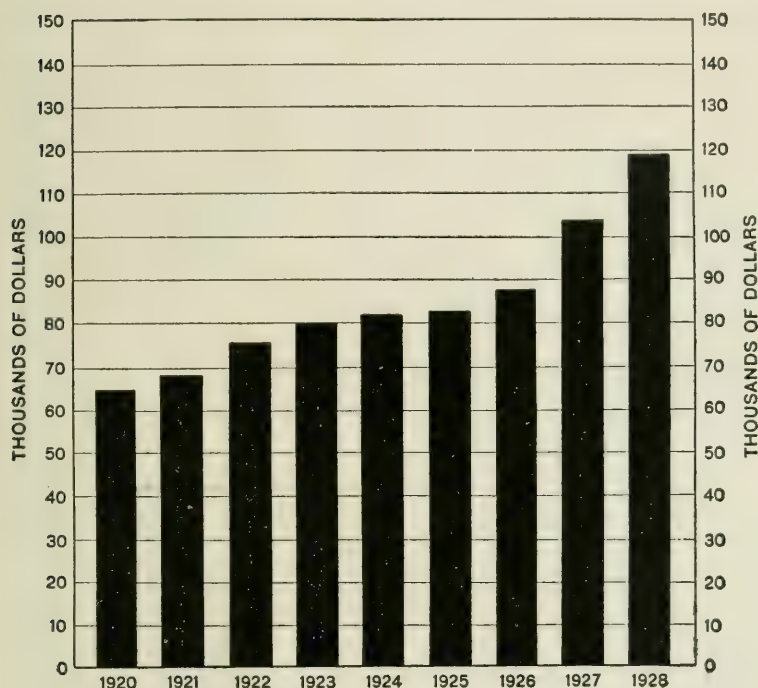


CHART XXVII (2)

The establishment of a permanently larger income at a later date was the primary requirement of this estate. To serve this purpose most effectively, current income has been subordinated to appreciation in principal. The income obtained for the nine years ended June 30, 1920-1928, was as follows:

1920	1921	1922	1923	1924
\$64,232	\$67,384	\$74,482	\$79,802	\$81,271
1925	1926	1927	1928	
\$81,681	\$86,586	\$103,045	\$119,872	



that seemed best suited for the requirements of the beneficiaries was not finally completed until 1922.

The proportions between cash or short-term holdings, long-term bonds, and common stocks were restricted within general limits as a definite hedge against the future trend of any one type of security. No effort was made to forecast the future of either long-term bonds or common stocks. The short-term bond fund was, however, liquidated for favorable purchases of common stocks in 1921 and again in 1924. Since 1925 an attempt has been made, rather unsuccessfully from a monetary standpoint, to protect the increasing investment in common stocks as prices rose by a gradual cutting down in favor of short-term securities. A gradual decrease in long-term bonds in favor of short-term as yields declined has likewise proved unprofitable during the last three years.

In the stock fund, diversification of industry and locality was strictly adhered to. No single investment with the exception of United States Government bonds ever exceeded 5 per cent of the total principal, and when through appreciation an overinvestment occurred a reduction was made irrespective of the relative attractiveness of the security. Only high-grade and seasoned common stocks were bought; no weak or speculative securities were included throughout the period. Financial condition, future prospects, past record of the management's accomplishment, and ratio of earnings to selling price were the primary factors in the determination of the indi-

vidual selections. Current income yield was entirely disregarded.

The preferred stocks represented issues which were convertible into common stock, and for one reason or another appeared more attractive than the junior equity.

In the short-term bond fund only the highest grade issues were included—for the most part United States Government and municipal issues, where yield was sacrificed for marketability and stability.

The long-term bond fund was made up of marketable and seasoned issues, yield again being sacrificed for security. Some effort was made, however, to obtain issues that appeared underpriced because of what were believed to be popular prejudices or lack of banking support. Maturities were from 10 to 50 years with an average of about 35 years.

Income taxes were given greater prominence in the determination of sales than, in the light of experience, now appears to have been justified. In other words, a number of stocks which it was thought advisable to sell on a basis of comparative investment merit were held on account of the taxes which it would have been necessary to pay, and the results did not justify such procedure. The policy now being followed is to disregard profits taxes as a primary consideration in the administration of this fund.

The average annual turnover has amounted to approximately 30 per cent of the principal, but it is now apparent that only one-half of the revisions

made were justified in the light of the results obtained. It is equally apparent, however, that an exact knowledge of the future was necessary to determine what changes were advisable at the time and what were not, and therefore we may conclude that this large turnover did justify itself since a smaller turnover in other funds has not produced as good results.

The results obtained might have been better or worse had a speculative policy been followed, depending upon the accuracy of forecasting and judgment, but risks would have been materially increased. The large factor of safety which has been provided throughout, and which in effect supplied a hedge against any conceivable contingency has of course lessened the total accomplishment that might have been obtained during most of this period by a 100 per cent concentration in common stocks, or by substituting long-term bonds for the short maturities carried.

It is probable that the rate of appreciation in principal and income during the last 9 years may not be repeated in the next 9 years. But no investment policy can control economic conditions; it can merely take advantage of opportunities if and as they occur. Should adverse conditions arise, however, it is almost inconceivable that the income of this fund will shrink to the purchasing power that it had in 1920. It would appear, on the other hand, that the beneficiaries are definitely and permanently better off and from a relative standpoint will continue to be better



off so long as this general investment plan is conservatively followed, whether the price of stocks or the price of bonds, or their purchasing power values rise or decline.

Conservative and successful investment must provide the investor protection against any contingency rather than against only one. Such a policy foregoes the maximum gain in order to insure protection against maximum losses. The speculator must be prepared to accept large losses in return for the prospect of large gains, while the conservative investor may anticipate growth at a slower but more certain rate.

## *Chapter XII*

### FUTURE OF THE INVESTOR'S PROBLEM

THE first essential for sound judgment in investment management is unprejudiced knowledge of past experience. Most of us have the brains and reasoning power to reach sound conclusions once the premises are accepted, and a few have sufficient imagination and insight to make adequate allowance for the introduction of new factors that are always complicating the issue by their unknown influences. But if all our reasoning and insight into the future are based upon an erroneous premise of past experience, our conclusions also are almost certain to be erroneous.

Unfortunately, many of our statistical or analytical studies in finance and investment have been carried on by students without practical investment experience, or by agencies that were not made to suffer keenly from the failure of their theories to work out in practice. Too frequently, perhaps, statisticians and forecasters, jealous of their reputations, have become more interested in interpreting current phenomena to justify previously announced theories than in recognizing the fallibility of the theories.

On the other hand, our large investors and financiers are naturally of the temperament that is primarily interested in applying their knowledge,

inadequate as it may be, in a way that will be productive of real, practical results. The mental exercise of making judgments and acting on previously supplied data is more exhilarating and pleasant to the average intelligent man than spending a lifetime gathering the data wherewith others may derive the pleasurable exhilaration of reaching more scientific conclusions and acting thereon. The successful financier and executive is not mentally inclined toward statistical studies, and the average statistician does not have the practical knowledge and insight essential to guide him in such an undertaking.

Most laymen who elect to exchange their dollar surplus for investment securities have a working knowledge of the various types of stocks and bonds. Some investigate more carefully than others the management and earnings of the particular company in which they desire to place their funds, and a few are fortunate enough to be familiar with the general principles of corporation finance. It is, however, left for the investment specialist (the capitalist, the banker, and those who serve the public in purely advisory capacity) to discern the basic and subtle forces forever at work upon security prices.

#### THE INVESTMENT STUDENT'S CATECHISM

The investment student has already learned, for instance, that there is a close interrelation between the workings of our sensitive money civilization and

the market values of stocks and bonds; he has learned that as our imperfect financial machinery operates, it often drives security prices materially above or below the levels of their intrinsic worth; that the market prices of securities are influenced not only by current interest rates (the going rental value of money), but also by the trend of commodity prices as evidenced by the varying purchasing power of the dollar; that whereas a large supply of idle funds resulting in a lowered interest rate will tend to raise the price of both bonds and stocks, "a contraction of credit is often the most conspicuous feature of crises as in the American panics of 1893 and 1897, while at other times credit contraction plays a minor rôle in comparison with the decline in volume of business as in the British Crisis of 1907";<sup>1</sup> that a continued surplus of gold or credit currency is likely to develop into inflation with higher security prices; that the latter stages of inflation are usually accompanied by illusory prosperity with an accelerated rise in stock prices but a fall in bond prices; and finally that the Federal Reserve Act, allowing for a more facile expansion and contraction of credit, may be expected to moderate violent fluctuations in the future course of the industrial cycle.

In addition, the investment student has learned that rising commodity prices result in a subtle transfer of wealth from those having fixed money incomes, such as bondholders and salaried men, to other members of society; that values change slowly and prices

<sup>1</sup> Mitchell's *Business Cycles*, page 582.

fast; that sentiment or crowd psychology often exerts a temporary yet powerful influence upon the course of security prices; that a rise in commodity and stock prices tends to generate a further rise in prices and continues to do so as long as the enterpriser's profits remain abnormally high; and, likewise, a fall in prices tends to generate a further fall in prices.

#### THE EXPERT AND THE APPRENTICE

There is nothing extraordinary in the fact that the investment specialist has learned through years of application and training to correlate with some degree of success the seething mass of forces operating incessantly to affect the market values of stocks and bonds. It is his business to interpret these multiple energies, estimating as accurately as possible the predominant tendencies resulting from their interplay. But the striking nonchalance and disregard of primary principles with which the layman seeks to invest his dollar surplus is remarkable. The great majority of the public have failed in signal fashion to evaluate the hazards attending the conservation<sup>2</sup> of wealth through the medium of stocks and bonds. Although successful investment is extremely difficult business, it is apparently the only field of endeavor in which the novice feels competent to engage without previous preparation or experience.

<sup>2</sup>Conservation here designates the retention of purchasing power in a money civilization where the value of the dollar is constantly fluctuating.



The bulk of the investor's information, knowledge, and advice finds its source with the investment banker. The banker with his prospectus and his influence on the corporate reports has, perhaps, done more than any one else to give information to the investor. This information is given in good faith, but there is a fundamental suspicion which should attach to it from the investor's standpoint. The investor is interested in his own financial future. The investment banker is not primarily interested in the financial future of the investor, but in selling securities for the companies which he finances. The corporation wants to finance as cheaply as possible while the investor wants as much for his money as possible. Between the two stands the investment banker, not altogether as a disinterested judge, nor yet as a representative of one of the parties concerned. He has a third attitude and object: he is a merchant primarily interested in obtaining and selling marketable merchandise that will provide him with a fair profit.

Of course reputable merchants will insist upon handling good merchandise and the general integrity of individuals comprising the banking business in this country is probably higher than in any other commercial enterprise. Also, a more enlightened study of the investor's problem by the investor himself and a general mobilization of agencies operating in his interests during the last few years have forced the investment banker to give increasing recognition to the investor's welfare in order to maintain his clien-

tele of customers. But at best there are two other interests frequently opposed to the investor's interests that have an equal claim to the banker's attention and support. These opposing or conflicting interests are:

1. Welfare of the financing corporation
2. The banker's merchandising profit.

The time is now approaching when both corporations and investors are recognizing the losses they suffer through such a method of distribution. It is not unreasonable to assume that the investment banker will eventually become the representative solely of the financing corporation, and that the investor will retain his own expert representative. These two experts may then deal with each other on behalf of their respective clients.

#### DEVELOPMENTS IN THE INVESTOR'S INTERESTS

Two new enterprises that have been developing rapidly in this country since the war are fundamentally and exclusively concerned with the problem of the investor. They are the profession of investment counsel and the investment trust. They attract both the practical administrator with experience and judgment, and the theorist or student with the true zeal of the scientist. Proper recognition of the function of each type of man in these new enterprises serving the interests of the investor, and encouragement to

investment students to proceed along more practical lines are essential in the development of a more scientific basis for investment management.

Although we may look to investment counsel and the management of investment trusts for a more scientific, or at least unprejudiced, analysis of some of the more urgent problems facing the investor, it should not be lost sight of that these recent entrants in the investment field also present a possible danger in that their growing popularity with the investor may encourage a general exploitation of the constructive economic service that they were designed to provide. We should realize that there is nothing magic about the words "investment counsel" or "investment trust" that can change security merchants into unbiased advisers or force an organization of questionable integrity to operate solely in the investor's interest. Investors should beware of organizations calling themselves investment counsel or investment trusts and offering their services free or for a nominal sum. Competent men in the field of investment expect fair remuneration for their time and effort. If the remuneration is not paid in the form of a fee, it will probably be obtained in some undisclosed manner which in many cases would render their advice or management detrimental rather than beneficial—in any event, it would become prejudiced.

During the formative period of these two agencies, the fundamental requirements of organization and operation which experience has shown to be essential

to the investor's interests should be clearly understood. The writer would outline these requirements briefly as follows:

FUNDAMENTAL REQUIREMENTS OF  
INVESTMENT COUNSEL AND  
INVESTMENT TRUSTS

1. The executives should be men of integrity, ability, and experience.

2. In order that their judgment may be totally unbiased, they should be precluded from having any financial or brokerage interest in the securities sold and purchased; and equally important, their compensation should be based not on profit sharing—a basis which does not assure the conservatism of judgment essential to safety—but on a fixed fee stated in advance and determined by the amount of capital placed under their supervision or management. Such a method assures not only the vigilant attention of the advisers or managers, but it also enables them to budget their expenses and provide a known fund for research.

3. The major part of fees received from clients or shareholders should be expended for intelligently directed investment research and the prospective client or shareholder is entitled to some concrete evidence of how the charges for supervision and management are expended in his interest.

4. The policy of investment should be fully defined in advance. In the case of investment counsel, this should involve a comprehensive report outlining the client's particular circumstances and objectives with the recommendation of a general long-term investment plan adapted to the client's requirements. In the case of investment trusts, the policy of investment should be clearly stated in the indenture which the prospective shareholder should read with care.

5. The clients of investment counsel should at all times keep their securities under their own control and be free to terminate the relationship at their option. Similarly, the shares of an investment trust should be redeemable at the shareholder's option, thus leaving him free at all times to terminate the contract of management and resume control of his property. If the shares of the trust are redeemable at the investor's option, he can at any time secure their actual value; if salable only, he must find a purchaser should he wish to sell his shares, and he has no assurance that he will receive their full value. Furthermore, if the shares are redeemable, the executives must continue to exert a vigilant supervision; for if the shareholders lose confidence, they will redeem their shares, and the compensation of the management will disappear.

We are today in a new world, struggling under old laws and practices. Our age has been one of unprecedented growth and startling transition. We have been rushed forward into new and varied realms of activity with such heartbreaking speed that in many ways our formulas do not fit or afford a proper interpretation of the existing facts. To use the apt phraseology of Woodrow Wilson in a discussion on our modern political and economic régimes, "We have not kept our practices adjusted to the facts of the case, and until we do, and unless we do, the facts of the case will always have the best of the argument." The investing public among others has failed to fit its practices to the facts, and the facts have had the best of the argument in the shape of losses to surplus totaling millions upon millions of dollars.



If our investment practices have failed to fit the facts in recent years, it behooves those responsible for investment management and advice to inquire more fully and scientifically into what the current investment facts actually are. In the practical yet highly involved business of investment management we must ever be ready to subordinate traditional theories evolved from the antiquated experience of former generations in order to adjust current practices to current facts. And when, as a result of intensive research and unprejudiced analysis, we have successfully adjusted current practices to current facts, then it may truly be said that the pursuit of investment is emerging from the realm of vague and mysterious "dogma" into the realm of "practical science."

## APPENDIX I

### THE RISKLESS RENTAL VALUE OF CAPITAL



## THE RISKLESS RENTAL VALUE OF CAPITAL

For many years economists have talked more or less vaguely of the theoretical "pure interest rate." This concept has always been associated with the yield obtainable on the very highest grade long-term obligations where the risk factor is practically negligible. The actual yield on such long-term obligations, however, is not determined by the present relation between the supply and demand for capital alone, but also by changes which the aggregate of borrowers and lenders anticipate in this relationship over a period of years. For example, in 1919 and 1920 when there existed an unusual demand for capital, long-term bonds sold on a lower yield basis than short-term bonds of the same grade because a reduction in interest rates was anticipated. At this writing, short-term bonds are selling on a somewhat lower basis than long-term bonds, which would seem to indicate that the consensus of opinion of borrowers and lenders is that for the long-time trend the supply of capital is now unusually large, and as this maladjustment approaches normal interest rates will rise.

### *An Index Reflecting the Current Relationship Is needed*

The traditional pure interest rate is therefore a highly theoretical figure that is very difficult to estimate with any degree of accuracy. Furthermore, even if this theoretical concept could be calculated with fair approximation, it does not as accurately measure the component part of present rent in the return on investment as an index that reflects just the *current* relationship between the supply and demand of capital. For the purpose of analyzing investment experience, it seems more practical to estimate simply the current riskless rental value of capital, or the average rate at which short-time capital could have been borrowed each year without risk to the lender. As suitable subjects for this study of riskless rental value, investments should be selected which represent loans rather than ownership and with the following qualifications:

1. Very small element of risk.
2. Large amount continuously outstanding with large number of investors.
3. Unchanging quality over long term of years.

4. Sufficiently short maturity so that yield will represent the current relationship between the supply and demand of capital only, without introduction of a discount or premium for future changes anticipated.

By process of elimination the two types of investment finally selected as best adapted for this study were:

1. 4 to 6 months' Two Name Prime Commercial Paper.
2. 4 to 6 months' United States Treasury Certificates.

The National Credit Office estimates the annual loss experienced in Prime Commercial Paper during the last few years at something less than 1/100 of 1 per cent, although the lender's estimate of the risk as reflected in the rate has been perhaps somewhat greater than this. The lender's estimate of the risk involved in United States Treasury Certificates during recent years is practically negligible, but it is only during recent years that these short-term obligations of the government have been outstanding in large amounts and a record maintained of the average weekly yield on the 4 to 6 months' maturities.

*Current Riskless Rental Rate **above** yield on United States  
Treasury Certificates*

The extent of risk involved in United States Treasury Certificates is so small that the record of the Federal Reserve Board of the average weekly yield on 4 to 6 months' maturities might be accepted as a very close approximation to the current riskless rental value of capital, except that the tax exemption feature results in a premium which obviously reduces the yield below the simple rental rate. Treasury Certificates have been exempt from the 13½ per cent Federal income tax assessed against corporations and it is by corporations that the majority of Treasury Certificates are held. Although the tax exemption feature may not have been discounted to the extent of 13½ per cent in the yield on Treasury Certificates, it is apparent that it much more than overshadows the risk factor and results in a net yield substantially below the current riskless rate.

*Current Riskless Rental Rate **below** yield on Prime  
Commercial Paper*

The lender's estimate of risk in Prime Commercial Paper is greater than his estimate of the risk in United States Treasury Certificates. Also, there is some expense involved in clerk hire and



general overhead for the handling of Commercial Paper. The riskless rental rate must therefore be somewhat below the gross rate on Prime Commercial Paper.

*High and Low Limits Established*

A comparison of weekly yields on these two types of loans from 1922 to 1928 is shown in Chart XXIX immediately below. It will be noted that a differential of approximately 1 per cent in yield is

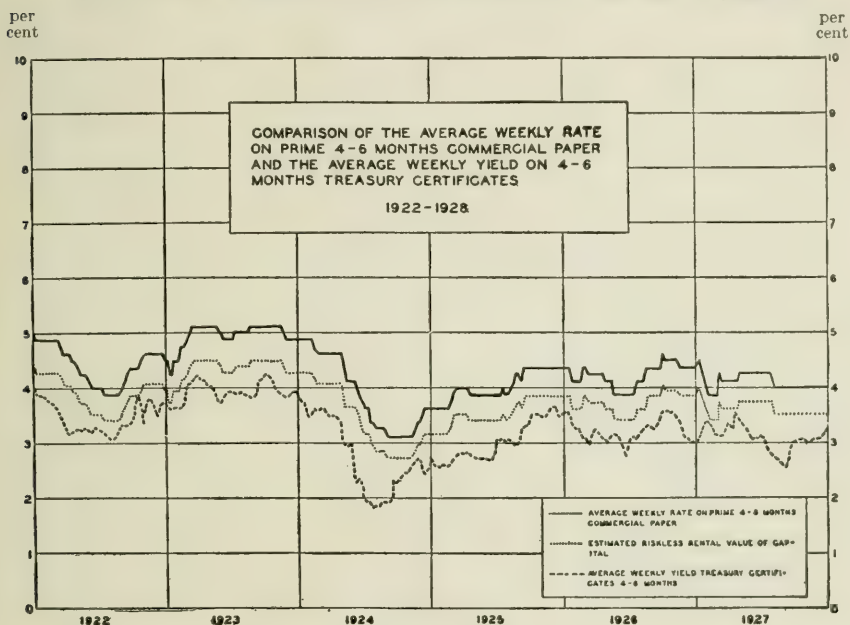


CHART XXIX

fairly well maintained throughout this period. The average differential is 24 per cent of the yield on Prime Commercial Paper. We now have two types of investment the yields on which are determined primarily by the current riskless rental value of capital. In the case of commercial paper the risk factor plus the expense of handling, etc., are responsible for a gross rate above the riskless rental rate; whereas in the case of United States Treasury Certificates the income tax exemption feature is responsible for a net yield below the riskless rental rate.

*The Riskless Rental Rate Estimated 1875-1928*

The assumptions made thus far in this analysis may be readily accepted. When, however, we attempt to evaluate with any degree of exactness the importance allocated by the lender to the factors of risk, expense of handling, and income tax exemption in each of these types of investment, we are dealing with vague and involved influences impossible of measurement. Rather than attempt to refine these unknown influences to definite figures, it would probably be a more justifiable procedure to adopt some arbitrary method that seems reasonable for calculating the riskless rental rate somewhere between the limits that we have established. The average difference in rate for the 6-year period of these two limits is about 24 per cent of the rate on Prime Commercial Paper. Until further study makes a revision appear advisable we have estimated the riskless rental rate shown on Chart XXIX by deducting one-half of the average spread between the limits established, or 12 per cent, from the rate on Prime Commercial Paper. Our estimate of the current riskless rental rate calculated on this basis may be a little high or a little low. It seems fair to assume, however, that this estimate probably does not vary substantially above or below the theoretical rate that we have tried to ascertain.

Inasmuch as the nature of highest grade Two Name Commercial Paper has remained approximately constant for the last half century, this calculation of the riskless rental rate may be carried back for as many years as we can obtain reliable data compiled currently on Commercial Paper rates. The average yearly riskless rental rate for capital from 1875 to 1928 computed in accordance with this plan is shown in Chart I, in Chapter III.

*A 10-Year Moving Average to Approximate the Traditional  
"Pure Interest Rate"*

For the theorist who has been wont to have his traditional pure interest rate subject to no violent fluctuations and flow through the years with only slight and gradual changes in its course, it is suggested that a 10-year moving average of this riskless rental rate might produce a more acceptable picture for him. Such a moving average would be equally affected by the changes in supply and demand of capital for the 5 preceding and the 5 following years. Although the relationship between the supply and demand for capital during the preceding 5 years has an effect on the yield basis

at which long-term bonds are traded, it is the *anticipated* future changes rather than the *actual* future changes that are reflected in this yield basis. In so far as the anticipated changes in the relationship of supply and demand of capital are borne out in practice the 10-year moving average of the estimated riskless rental rate as

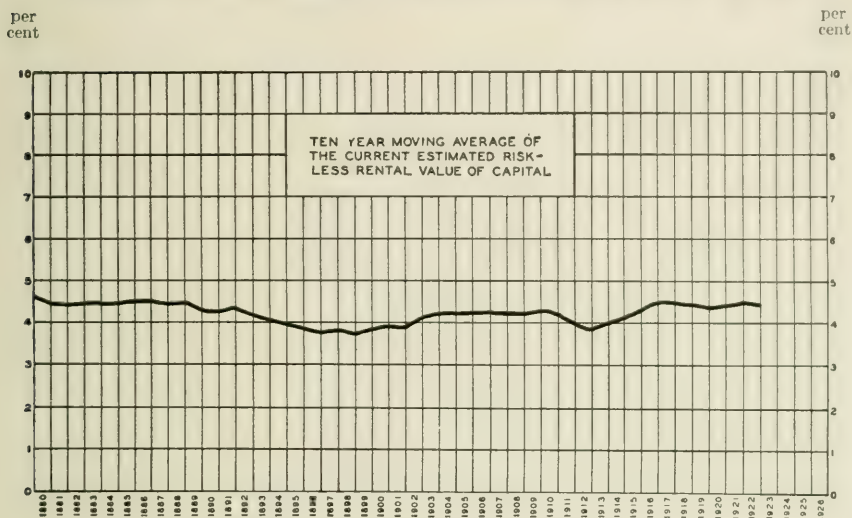


CHART XXX

illustrated in Chart XXX might be accepted as a fair approximation to the traditional pure interest rate. However, the writer believes that the annual riskless rental rate as illustrated in Chart I of Chapter III is the more suitable base above which currently to measure net investment accomplishment.



## APPENDIX II

FORECASTS BY PROMINENT FINANCIERS IN 1899





A HINDSIGHT REVIEW  
OF  
FORECASTS BY PROMINENT FINANCIERS  
MADE IN THE YEAR  
1899  
ON THE  
TREND OF INTEREST RATES

SINCE 1902, savings banks and insurance companies have in the aggregate probably suffered greater losses through unsuccessful speculation on the trend of interest rates than through any other form of investment or speculation.

In the years 1900-1902, the last years of a long decline in interest rates, officers of many financial institutions, fearing a permanent downward trend, concentrated their investments in high-grade bonds of the longest term available. The losses suffered from this action are not readily apparent in funds where investments are carried at cost irrespective of market changes, because such losses are gradually being absorbed over a long period of years through the acceptance of a return on invested capital substantially below the average rate currently obtainable.

The decline in market value of the average high-grade  $3\frac{1}{2}$  per cent 100-year bond from 1902 to 1920 was over 30 per cent. The difference between income actually received on these high-grade, long-term bonds and the average rate currently obtainable during the eighteen years was about  $\frac{1}{2}$  per cent. If the total difference in income return of about 9 per cent is added to the decline in market value, we find that there was in 1920 a combined shrinkage of about 40 per cent. This unfortunate shrinkage was just as real whether the low-coupon bonds were sold in 1920, the loss recorded and proceeds reinvested in a smaller number of bonds of higher coupon rate, or whether the same bonds, carried on the books at cost, are held until maturity accompanied by an extended sacrifice of income in order gradually to restore the principal amount originally invested.

In the year 1899 the Equitable Life Assurance Society asked the most prominent financiers of the United States to give their opin-

ions as to the rate of interest they considered safe for a life insurance company to count upon realizing during the 20 ensuing years. From the replies it is apparent that many of these men interpreted this inquiry as a request for their forecasts of the trend of interest rates over the 20-year period. A review of their letters reprinted on the following pages will help us more clearly to understand the reasoning that prompted such heavy institutional buying of long-term bonds in the early 1900's, and may leave some of us less sanguine to-day on the future of long-time investments.

The plethora of capital seeking investment in the United States at the present time and the concentrated buying of long-term bonds by institutional investors are very similar to conditions that existed in the years centering about 1899. Heavy commitments in long-term bonds are undoubtedly influenced by the feeling prevalent among many present-day students of finance that the trend of interest rates will be downward for many years to come. Before hazarding the greater part of an institution's funds on this forecast, however, it may be well to ponder over the reasoning advanced by our most prominent financiers in 1899 which resulted in prophecies that have proven almost 100 per cent wrong. The major arguments advanced for lower interest rates to-day are very similar to those advanced in 1899. Average yield on highest-grade, long-term, taxable bonds is substantially higher to-day than it was in 1899, but if proper allowance is made for state and federal taxes now paid out of bond income, the net return is approaching the low point of the gross return of 1899.

Without attempting to forecast whether the general trend of interest rates for the 20 years following 1927 will be up or down, the writer holds to the belief that sound investing, like sound insurance underwriting, implies protection against all contingencies of the future that can reasonably be anticipated rather than a dependence on one potential future development that human judgment presumes to foresee. The prominence and unquestioned ability of the forecasters of 1899 and the extent to which they were mistaken in their judgments provide a striking illustration of the unreliability of financial forecasts over any considerable period. And the enormous losses incurred by the institutions that speculated on these eminent prophecies emphasize the fundamental importance of maintaining protection against unexpected eventualities in any conservative investment program.

A hindsight review of the predictions of 1899 should sound a warning note to insurance companies and other institutions now encouraged by the forecast of present-day students of finance to

commit the greater part of their capital to long-term bonds without any compensating investment to protect the fund in the event that the opinions of our forecasters again prove to be erroneous.

The following letter was written in January, 1899, to a number of leading financiers by the Equitable Life Assurance Society of the United States:

My Dear Sir:

We should be greatly obliged to you if you would be good enough to let us know what rate of interest you consider it safe for a life insurance company to count upon realizing, on its total assets, invested in such securities and mortgages as an institution of this kind should hold, during the next twenty years.

The policy contracts and the premiums charged thereon involve a calculation in advance of the interest rate which will certainly be obtained beyond peradventure, and the opinion of experienced financiers is sought in order to reach a trustworthy conclusion.

Very truly yours,

JAMES W. ALEXANDER.

The following are the answers received:

TREASURY DEPARTMENT,  
Office of the Secretary.

Washington, D. C., January 21, 1899.

My Dear Sir—I have yours of the 19th inst., in which you ask my opinion as to the rate of interest which a life insurance company can reasonably count upon realizing on its total assets, invested in such securities and mortgages as such an institution should hold, during the next twenty years.

Any answer made to such a question is, of course, liable to be vitiated by circumstances and vicissitudes which no human mind can measure in trying to estimate the future. Looked at, however, in the light of probabilities, with the general average conditions, social and national, which have prevailed for twenty years past, and taking into account the rapid increase of capital and the growing economies in production and distribution, it would seem that the tendency of interest was permanently downward, and that it would be hazardous to estimate a rate higher than 3 per cent as an average available return upon high-grade securities during the next twenty years.

On the other hand, with our country largely undeveloped in its

latent resources, as it is, affording still room for the intelligent application of capital to the development of such resources, it would seem to me that 3 per cent might be fairly estimated to be a realizable average rate. This, at least, is about the point where my judgment balances the question. Very truly yours,

LYMAN J. GAGE.

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OFFICE OF ASSISTANT TREASURER  
OF THE  
UNITED STATES

New York City, January 30, 1899.

Dear Sir—Of course, there are many “if’s and but’s” in monetary prevision, but as I see present and prospective financial conditions, I should say that 3 per cent per annum income is the best estimate I would advise in making future long investments. Very respectfully,

C. N. JORDAN, Asst. Treasurer.

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BANKING HOUSE  
OF  
HENRY CLEWS & Co.  
11, 13, 15 and 17 Broad St., and 35 Wall St.

New York, January 28, 1899.

Dear Sir—I cannot but feel some hesitancy in attempting to answer, with any definiteness, the important question presented in your letter of the 26th inst.

Your selection of investments, from the care and the intelligent choice of opportunities with which it is exercised, is so different from that of the average investor, that I cannot take ordinary experience as to earnings on stock or bond investments, as a sure guide for estimating such returns in the case of a great institution like yours. I find that the Equitable Life, in 1897, received an average of about  $4\frac{1}{2}$  per cent on its investments in stocks and bonds. That is probably  $\frac{3}{4}$  to 1 per cent more than the average careful investor, selecting only gilt-edged stocks and bonds, realized that year. This difference of return, or a good portion of it, should be credited to an institution like yours in estimating its probable future earnings from this class of investments.



My own judgment, formed from the past drift of the rate of interest and from the apparently strong probabilities of that tendency continuing in force, is that the average conservative investor may be expected to earn in the future, from the class of investments you mention, from  $2\frac{1}{2}$  to  $3\frac{3}{4}$  per cent, or, on an average, say 3 to  $3\frac{1}{2}$  per cent; and upon that basis, I should judge that, with your superior facilities in selection and management, you might safely count upon an average return of  $3\frac{1}{2}$  per cent for the average of the twenty years, upon the actual amount invested.

I submit this estimate with much diffidence in view of the great complexity of the many influences that are now affecting the earnings of capital. It seems to me, however, to be fully established, by the last quarter of a century's experience, that the cheapening of productive forces diminishes the earning capacity of capital; and I see no reason for expecting that this law will cease to operate within the period you suggest.

Very truly yours,

HENRY CLEWS.

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23 Nassau Street.

New York, February 1, 1899.

My Dear Sir—I beg to acknowledge the receipt of your favor of January 26th.

I have given the matter very careful consideration, and I think that depending upon any more than 3 per cent as an average return upon investments during the next twenty years would not be conservative. The average, in my opinion, will be rather less than more. Believe me,

Yours very truly,

AUGUST BELMONT.

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KUHN, LOEB & Co.  
27 and 29 Pine Street.

New York, January 19, 1899.

My Dear Sir—I have your valued communication of yesterday, in which you ask my opinion as to what rate of interest should be considered safe for a life insurance company to count upon from its investments for the coming twenty years.

This, as you are aware, is a difficult question to answer, and whatever is said can, at best, be only an expression of opinion.

To me it appears almost certain that the rate of interest on investments such as a conservative corporation will be willing to make, must further decline. The amount of available railroad bonds which have heretofore offered so large a field to draw upon for investment, is becoming more and more reduced, and the new railroad construction to be undertaken in the future will not be very considerable and will almost entirely be done in the way of extensions to existing companies. I have very little doubt that the rate of interest on such investments will, before long, decline to 3 per cent, while upon state and municipal bonds this has already become the top rate.

It may be possible for a time to realize a somewhat better rate on real estate mortgages, but, as you are likewise aware, the volume of these is not great, and, at best, real estate mortgages cannot be considered as long permanent investments.

Though it is not at all unlikely that after another ten years have elapsed, 3 per cent may be a high rate of interest, not obtainable on first-class investments, with the opportunities which still offer to invest at  $3\frac{1}{2}$  per cent, or even somewhat better, and taking into consideration, in the case of your company, the large amount of bonds paying a higher rate of interest it already owns, I believe it will be entirely safe to take, for a period of twenty years, 3 per cent interest as a basis for the company's business. I remain,

Very truly yours,

JACOB H. SCHIFF.

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UNITED STATES TRUST COMPANY

OF

NEW YORK.

45 and 47 Wall Street.

January 19, 1899.

My Dear Sir—Replying to yours of yesterday's date, I beg to state that the rate of interest which I consider it safe for a life insurance company to count upon realizing on its total assets, invested in such securities and mortgages as such an institution as yours should hold, *during the next twenty years*, is 3 per cent; possibly  $3\frac{1}{2}$ . The latter rate I do not consider beyond peradventure.

Very truly yours,

JOHN A. STEWART.

## THE CHASE NATIONAL BANK.

New York, January 31, 1899.

Dear Sir—In further reply to your favor of the 26th inst., making inquiry as to what rate of interest I would consider it safe for a life insurance company to count upon realizing on its total assets invested in such securities and mortgages as an institution like yours should hold, during the next twenty years.

After consideration of the subject I have reached the conclusion that from 3 per cent to  $3\frac{1}{2}$  per cent per annum would appear to be a fair rate of interest, taking into consideration the high class of securities required by life insurance companies like your own.

Very truly yours,

H. W. CANNON, President.

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THE GREENWICH SAVINGS BANK,  
(Incorporated 1833.)

246 and 248 Sixth Avenue, S. E. Cor. 16th Street.

New York, January 28, 1899.

My Dear Sir—I have received your esteemed favor of the 26th inst., and it gives me pleasure to be of service to you, though I am afraid my judgment possesses no great value in the direction named by you.

I am disposed to think that a life insurance company could, with the liberal scope of investments at their command for the coming twenty years, invest their moneys so that they would earn on an average from 3.25 to 3.50 per cent per annum, but in view of what you say about your policy contracts and premiums charged thereon, I would, were the case my own, base all such calculations upon an interest rate of 3 per cent.

Most cordially yours,

JOHN HARSEN RHOADES, President.

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THE MERCANTILE TRUST COMPANY.

New York, February 3, 1899.

Dear Sir—In reply to your favor of January 26th, asking my opinion as to a safe rate of interest for the calculations of a life insurance company during the next twenty years, I beg to say that in

my judgment I should consider 3 per cent the minimum and  $3\frac{1}{2}$  per cent the maximum.

I think, nevertheless, that, considering the character of a life insurance contract, only the safest assumptions should be used in the calculations of premiums. This is especially reasonable when it is remembered that in a mutual company any excessive interest earned is returned to the policyholders in the shape of profits. I therefore consider that the rate of interest which should be assumed by a life insurance company in making new contracts at the present time should not be more than 3 per cent.

Very respectfully yours,

LOUIS FITZGERALD, President.

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THE NATIONAL PARK BANK  
OF  
NEW YORK.

January 31, 1899.

Dear Sir—Answering your letter of January 26th, addressed to our president, Mr. Edward E. Poor, I regret exceedingly to state that Mr. Poor is confined to his bed by illness.

Therefore, that there may be no further delay in answering your letter, I beg leave to state that, if my understanding of your inquiry is a correct one, I should consider the rate of 3 per cent that is allowed on United States Government bonds of their last issue, or the rate allowed on our city bonds, either of these, to be a conservative basis for you to base your operations upon; and remain, with our regards, Very truly yours,

RICHARD DELAFIELD,  
Vice-President.

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EMIGRANT INDUSTRIAL SAVINGS BANK,  
51 Chambers Street, N. Y.

New York, January 28, 1899.

My Dear Sir—Replying to your communication of the 26th inst., asking my opinion in regard to "what rate of interest I consider safe for a life insurance company to count upon realizing on its total assets invested in such securities and mortgages as an institution of this

kind should hold during the next twenty years," I would say that believing cheap money is here to stay, the maximum would not exceed  $3\frac{1}{2}$  per cent, and I strongly incline to the belief that it would be unsafe to rely on a greater than a 3 per cent rate, or basis. I remain, Very truly yours,

JAS. M'MAHON, President.

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UNION TRUST CO. OF NEW YORK,  
80 Broadway.

New York, January 20, 1899.

My Dear Sir—I acknowledge receipt of your favor of 18th inst., asking my opinion as to what rate of interest would be safe for a life insurance company to count on realizing on its total assets invested as stated by you during the next twenty years. This is a difficult question to answer, in view of the changes that have taken place in the last few years in the interest realized upon trust funds, and any surmise can only be a guess. I should think that the rate of interest you can rely on should not be in excess of three per cent (3 per cent), nor below two and one-half per cent ( $2\frac{1}{2}$  per cent) per annum. Very truly yours,

EDWARD KING, President.

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NATIONAL BANK OF COMMERCE  
IN  
NEW YORK.

February 2, 1899.

Dear Sir—Replying to your letter of 26th ult., I beg to say: I am strongly of the opinion that 3 per cent is as much as can be *certainly* relied on for the full term, though  $3\frac{1}{2}$  might be obtained for the next few years. Yours very truly,

W. W. SHERMAN, President.

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METROPOLITAN TRUST COMPANY.

New York, January 31, 1899.

My Dear Sir—Absence from my office has prevented more prompt attention to your favor of 26th inst.



Replying to your question therein contained, I beg to say that I think a life insurance company during the next twenty years can count upon realizing a rate of 3 per cent on its total assets invested in such securities and mortgages as an institution of that kind should hold.

Yours very truly,

BRAYTON IVES, President.

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THE LINCOLN NATIONAL BANK  
OF THE  
CITY OF NEW YORK,  
32 to 42 East 42d Street.

New York, January 30, 1899.

My Dear Sir—I am in receipt of your letter of the 26th inst. The problem you give me is a most difficult one to solve; but I think that the rate of interest cannot be more than 4 per cent for the next twenty years. It is “the unexpected, however, that always happens”; and I may be wide of the mark. Money is very plentiful now, and, in my opinion, it bids fair to remain so for many years to come. I think it may be truthfully said that its earning capacity is being rapidly reduced to the low standard which prevails in England. In fact, far from the rate quoted being too low an estimate, I should say that, if it is desired to fix upon a rate that can be counted upon with absolute safety, 4 per cent is the very maximum that can be realized. Yours very truly,

THOS. L. JAMES, President.

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DRY DOCK SAVINGS INSTITUTION,  
341 and 343 Bowery.

New York, January 27, 1899.

Dear Sir—Your favor of the 26th asking my opinion as to the probable return on investments during the next twenty years, duly received.

So many things may occur in the time specified to change opinions and alter calculations that it is rather difficult to determine upon an actual rate, but taking into consideration the latitude allowed to you

and kindred companies in the way of investment, in my opinion  $3\frac{3}{4}$  per cent is the maximum rate of income you can figure upon with certainty.

In giving the foregoing figures, I am governed by a firm belief that low rates of interest on first class investments will prevail in the future.

There will undoubtedly be times in the future, as have been in the past, when rates will rise above the present level, but these will be temporary only and have no lasting effect. Yours very truly,

ANDREW MILLS, President.

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THE WESTERN NATIONAL BANK  
OF THE  
CITY OF NEW YORK.

New York, February 6, 1899.

My Dear Sir—I beg to acknowledge the receipt of your valued favor of 26th ultimo, asking me what rate of interest I would consider it safe for a life insurance company to count upon realizing on its total assets, investments in securities and mortgages such as an institution of that kind should hold, during the next twenty years, and I would say that I believe 3 to  $3\frac{1}{2}$  per cent would be a fair basis for making calculations as regards policy contracts and payments for the period named. Three per cent would probably be a more conservative basis for making such calculations than  $3\frac{1}{2}$  per cent. I remain, dear sir,

Yours very respectfully,

V. P. SNYDER, President.

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NEW YORK LIFE INSURANCE  
AND  
TRUST COMPANY,  
52 Wall Street.

New York, February 2, 1899.

Dear Sir—I find that the general opinion of my friends and advisors is that the rate of interest upon such securities as you describe is tending toward 3 per cent. Yours truly,

HENRY PARISH, President.

## INVESTMENT MANAGEMENT

THE HANOVER NATIONAL BANK.

New York, February 2, 1899.

My Dear Sir—I duly received your letter of January 26th. On thinking the matter over, I do not see how a company like yours can estimate the return on new investments for the next ten years at a higher rate than  $3\frac{1}{2}$  per cent.

What will be true of the succeeding decade is uncertain, that being too far off for me to say much about.

Yours very truly,

JAS. T. WOODWARD, President.

THE WESTERN SAVING FUND SOCIETY

OF

PHILADELPHIA.

Philadelphia, February 6, 1899.

My Dear Sir—I have received and carefully considered your letter of the 1st inst. I am of opinion that, in view of the increased accumulation in insurance companies and saving funds of capital seeking investment, and in view of the present and prospective re-funding of maturing railway loans at a lower rate of interest than that to which we have heretofore been accustomed, and in view also, and not leastly, of the apparent end of the contest as to the standard of value, it is not safe to calculate upon an assured income for a long period of years from high class investments at a rate exceeding from  $2\frac{1}{2}$  to 3 per cent. I am,

Faithfully yours,

C. STUART PATTERSON,  
Vice-President.

THE FOURTH NATIONAL BANK,

14 Nassau Street.

New York, January 27, 1899.

My Dear Sir—In reply to your favor of the 26th inst., I beg to say that, in my opinion,  $3\frac{1}{2}$  per cent would be the *outside* rate that you could calculate on realizing for the next twenty years on such securities as a life insurance institution could properly invest in. I believe that low interest rates have come to stay.

Very respectfully yours,

J. EDWARD SIMMONS, President.

THE NEW ENGLAND TRUST CO.  
Boston.

February 1, 1899.

Dear Sir—Your letter of January 27th was duly received.

My first impression was to name 3 per cent as the rate upon which you could safely base your calculations for the next twenty years, but upon reflection I am inclined to doubt whether you can, with absolute safety, go higher than  $2\frac{3}{4}$  per cent.

I certainly hope that this will prove to be a mistaken judgment.

Yours very truly,

WM. ENDICOTT.

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MERCHANTS NATIONAL BANK  
New York.

January 30, 1899.

Dear Sir—Replying to your circular letter of the 26th inst., would say that, in my opinion, the rate of interest I would “consider safe for a life insurance company to count upon realizing, on its total assets, invested in such securities and mortgages as an institution of your kind should hold, during the next twenty years,” would not exceed  $3\frac{3}{4}$  per cent per annum.

Yours very truly,

ROB'T M. GALLAWAY, President.

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MERCANTILE TRUST & DEPOSIT CO.  
OF  
BALTIMORE.

February 2, 1899.

My Dear Sir—I am in receipt of your esteemed favor of the 1st inst., and in reply to your inquiry as to my opinion of the rate of interest which would be safe for a life insurance company to count upon realizing upon its total assets invested in such securities and mortgages as an institution of this kind should hold during the next twenty years, I would state that in my judgment it would only be safe to calculate upon an average rate of interest not exceeding  $3\frac{1}{2}$  per cent.

No one knows better than yourself the present tendency of renewing loans at reduced rates of interest, especially on mortgages and issuance of new securities which have been so fully exemplified by large reorganizations in your city. I remain, dear sir,

Yours very truly,

JOHN GILL, President.

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President's Office,  
THE COMMERCIAL NATIONAL BANK,  
Chicago.

February 6, 1899.

My Dear Sir—I beg leave to acknowledge receipt of your favor of the 1st inst. relative to interest rates to be counted upon in the future by life insurance companies. It is very probable that the present plethora of unused money will not continue permanently in this country, but I do not believe even such fact will greatly tend to prevent rates for permanent investment in large sums from falling.

My judgment is that if you can secure, to a certainty, 3 per cent in the future on loans, bonds, etc., you will be fortunate. If a great many permanent real estate and building investments are made there would be danger of the average falling as low as  $2\frac{1}{2}$  per cent.

Very respectfully,

JAMES H. ECKELS.

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THE GIRARD LIFE INSURANCE, ANNUITY & TRUST COMPANY  
OF  
PHILADELPHIA.

February 3, 1899.

My Dear Sir—In response to your valued favor of the 1st inst., I should think that a 3 per cent rate would be all that could be safely counted upon during the next twenty years.

While, no doubt, your revenue from the use of general assets in various ways would make your general income exceed the return from this rate of interest, I believe the tendency of the rate on strictly first class and permanent investment securities is steadily toward a 3 per cent basis. Very truly yours,

E. B. MORRIS, President.



THE NATIONAL BANK OF COMMERCE  
IN  
ST. LOUIS.

St. Louis, February 6, 1899.

My Dear Sir—I regret that I am not in position to give you a reply to your inquiry of the 1st inst., that will be of particular value.

The trend of interest rates is downward, of course, and yet it is difficult for any one to forecast what will take place in the next twenty years.

The rapid accumulation of wealth and money for investment, and the consequent strong demand for first class securities, will naturally cause a reduction, but how fast that will take place is a problem that I do not like to pass upon without giving it more careful consideration than is possible at present.

Offhand, I should say that calculations based upon more than 3 per cent would not be realized if a period of twenty years is to be considered. Yours truly,

J. C. VAN BLARCOM, Vice-President.

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INTERNATIONAL TRUST COMPANY.

Boston, Mass., January 28, 1899.

Dear Sir—Replying to your favor of the 27th inst., we beg to say that we are of the opinion that with the immense improvement in the business and financial prosperity of the United States already assured, the prospective increase in the outlet for American manufactures, and the increased field for American capital and enterprise by reason of the acquisition of the islands in the West Indies and the Pacific, including the Philippines, that the demand for money and capital as a result thereof must give us, at least, for the next ten years, an average rate of income equal to that of the past ten years, during which time business has been almost paralyzed and all enterprise stifled. Trusting this fully answers your inquiry, we are,

Very truly yours,

JNO. M. GRAHAM, President.

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THE FOURTH ST. NATIONAL BANK.

Philadelphia, February 3, 1899.

My Dear Sir—I do not know that my opinion is worth much, but in reply to your inquiry of February 1st, I would roughly estimate

the rate of interest at which you ought to make calculations to cover the next twenty years to be about 3 per cent. I know, as a matter of course, that during the past twenty years you have earned much more than that, and will probably do the same during the next period of twenty years, but in such a calculation as you suggest it seems to me that one must deal rather with unfavorable factors than such as are particularly favorable; in other words, the rate determined upon must be safe beyond peradventure. Such I believe 3 per cent to be.

With kind regards to yourself personally, believe me, Yours very truly,

S. F. TYLER, President.

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ST. LOUIS TRUST COMPANY.

St. Louis, February 20, 1899.

Dear Sir—In reply to your letter of the 2d inst., will say, basing my opinion on your having facilities in all sections of the country for making investments, and on the fact that you loan on city real estate, I do not believe you can safely count on a rate of interest to exceed 4 per cent. Should you confine your investments to gilt-edge bonds, I should say, in this event,  $3\frac{1}{2}$  per cent would be the maximum.

Yours very truly,

THOS. H. WEST, President.

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THE PHILADELPHIA NATIONAL BANK.

Philadelphia, February 2, 1899

Dear Sir—Yours of the 1st inst. is received. The present abnormal condition of money in our country makes this a questionable time, it seems to me, to predicate the value of money for a period of, say ten or twenty years, and no opinion can be more than conjectural or be likely to aid in the solution of the problem, beyond the generally accepted fact that we are to look for much lower rates than have prevailed in the last five years. I incline to think of  $3\frac{1}{2}$  per cent as the probable average rate. Very truly yours,

B. B. COMEGYS, President.

THE THIRD NATIONAL BANK  
OF  
BOSTON.

Boston, Mass., January 30, 1899.

Dear Sir—Replying to your favor of January 27th, 1899, I should say, from the best opinion which I can form, that it would not be safe for a life insurance company to count upon realizing, during the next twenty years, upon its total assets invested in such securities and mortgages as an institution of this kind should hold, more than  $3\frac{1}{4}$  per cent per annum.

Yours truly,  
MOSES WILLIAMS, President.

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THE NATIONAL BANK  
OF THE  
REPUBLIC.

New York, January 28, 1899.

Dear Sir—In reply to yours of 26th inst. It is very difficult to predict, but should think 3 to  $3\frac{1}{4}$  per cent outside. Very respectfully,

OLIVER S. CARTER, President.

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FIRST NATIONAL BANK OF CHICAGO

Chicago, February 6, 1899.

My Dear Sir—I have your favor of the 1st inst., my answer to which has been delayed owing to my having the grip.

Your question is a broad one, and I hardly know how to answer it, not being familiar with the class of securities and mortgages to which you restrict yourselves in your investments. As an off-hand opinion, would say that if your company realizes an average of  $3\frac{1}{2}$  per cent on your investments during the next twenty years, you will be doing as well with your money as, in view of the present outlook, I think it is possible for you to do. Yours truly,

JAS. B. FORGAN, Vice-President.

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NEW ORLEANS NATIONAL BANK.

New Orleans, February 6, 1899.

Dear Sir—Your letter of February 1st, requesting an expression of opinion: "Let us know what rate of interest you consider it is

safe for a life insurance company to count upon realizing upon its total assets, invested in such securities and mortgages as an institution of its kind should hold during the next twenty years," has been received. I name 3 per cent per annum. Sincerely yours,

A. BALDWIN, President.

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THE CHICAGO NATIONAL BANK

Chicago, February 3, 1899.

Dear Sir—Answering your inquiry of February 1st, would say that in my opinion the life insurance companies of the country should figure their assets on a 3 per cent basis, and that they should commence doing it at once. When they come to replace the high rate securities they now hold, it will, it seems to me, be exceedingly difficult for them to average 3 per cent on all their investments.

Yours truly,

J. R. WALSH, President.

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FIRST NATIONAL BANK OF BOSTON.

Boston, Mass., February 3, 1899.

Dear Sir—Your favor of the 27th ult. is received, and would have been answered sooner but for the press of business.

I think the rate of interest safe (not to go below), would be *four per cent*. If we cannot invest our money at that rate then we must increase our rates for insurance. The present rates for good safe bonds, stocks and mortgages are already low, and tending downward all the while, and the outlook is not *encouraging*.

Very truly yours,

JOHN CARR, President.

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AMERICAN EXCHANGE BANK.

St. Louis, February 6, 1899.

Dear Sir—Yours 3d received. Three per cent, in my opinion, will be the average rate for "gilt edge" securities for the next twenty years. With kind personal regards, I am, Yours truly,

WALKER HILL, President.

VERMILYE &amp; Co.

New York, January 30, 1899.

Dear Sir—Replying to your favor of the 26th inst., in which you ask our opinion as to “what rate of interest you consider it safe for a life insurance company to count upon realizing upon its total assets, invested in such securities and mortgages as an institution of this kind should hold, during the next twenty years,” we would say, that when one looks backward and sees the changes that have taken place during the past twenty years, and the rates that capital would command, any prediction for the future seems very hazardous.

We should say, however, that if you based your calculations upon a 3 per cent rate, that you would be very conservative, which is, we know, what you desire to be. Yours very truly,

VERMILYE &amp; Co.

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J. & W. SELIGMAN & Co., BANKERS.

Mills Building.

New York, January 28, 1899.

Dear Sir—In answer to your letter of January 26th, we would say that it is our opinion that it will not be safe for a life insurance company to count on realizing, during the next twenty years, a return of more than 3 per cent on its total assets invested in the kind of securities to which such an institution would, by the nature of its business and the law, be limited.

Yours truly,

J. &amp; W. SELIGMAN &amp; Co.

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BLAIR & Co.

33 Wall Street.

New York, January 27, 1899.

Dear Sir—We have your favor of the 26th inst., and fully note your inquiry.

In our opinion it would be safe for a life insurance company to count upon realizing  $3\frac{1}{2}$  per cent on its security and mortgage investments during the next twenty years.

Very truly yours,

BLAIR &amp; Co.



DREXEL &amp; Co.

Philadelphia, February 2, 1899.

My Dear Sir—We have yours of the 1st inst. The question asked is an exceedingly difficult one upon which to venture an opinion; but considering the course of the stock market recently, and the way in which high class investment bonds have been and are now selling, the demand for such, and the reduction in the interest rate for mortgages, etc., we are led to the conclusion that any higher average rate of interest on first class securities than  $3\frac{1}{2}$  per cent is not likely to be had, and we therefore suggest in making the calculations for a term of years regarding your business, which are necessary for its proper continuance, that it would hardly seem wise to adopt a rate of interest exceeding 3 per cent per annum; such a course in my judgment would be the safest to pursue.

Yours very truly,

DREXEL &amp; Co.

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W. H. NEWBOLD'S SON & Co.

Philadelphia, Pa., February 4, 1899.

Dear Sir—In answer to your letter of February 1st, I would say that, as far as I can judge from the opportunities of forming an opinion at my command, between  $3\frac{1}{2}$  and 4 per cent would be fairly safe, with these two rates as a maximum and minimum.

Yours very truly,

ARTHUR E. NEWBOLD.

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LEHMAN, STERN & Co.  
(Limited.)

New Orleans, February 9, 1899.

Dear Sir—I have your favor of 1st inst., and in reply beg to say that I would consider  $3\frac{1}{2}$  per cent interest a safe rate to calculate on to be realized on such assets as a company of your kind is likely to invest in. Yours truly,

MAURICE STERN.

THE BANK FOR SAVINGS  
IN THE  
CITY OF NEW YORK,  
280 Fourth Avenue.

January 27, 1899.

My Dear Sir—You give me a hard nut to crack, but at a guess and considering that you can, or do, take a much wider range of investments than we are permitted to, I should say 3 per cent might do for some time to come. *We* can buy nothing *now* that we *will* buy, to pay over about  $3\frac{1}{8}$  and from that down, and with mortgages generally down to 4 per cent, our rate of interest must come down as soon as some more of our old investments mature.

Yours truly,

MERRITT TRIMBLE, President.

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WINSLOW, LANIER & Co., BANKERS

New York, January 30, 1899.

Dear Sir—In reply to your favor of the 26th inst., in which you ask us what rate of interest we “consider it safe for a life insurance company to count upon realizing, on its total assets, invested in such securities and mortgages as an institution of this kind should hold, during the next twenty years,” we would say that we consider the rate of 3 per cent per annum to be a safe one on which to base your calculations for that period. We beg to remain,

Very truly yours,

WINSLOW, LANIER & Co.

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I. & S. WORMSER, BANKERS.

Mills Building 15 Broad Street.

New York, January 28, 1899.

Dear Sir—In reply to your favor of the 26th inst. we beg to say that in our opinion any corporation investing in prime securities at present prices should realize about  $3\frac{1}{2}$  to  $3\frac{3}{4}$  per cent during the next twenty years. Yours truly,

I. & S. WORMSER.

KIDDER, PEABODY & Co.,  
113 Devonshire Street.

Boston, Mass., January 30, 1899.

Dear Sir—In reply to yours of the 27th inst., I would say that I believe that  $3\frac{1}{2}$  per cent is a fair estimate of income for the coming twenty years.

At present this seems high, but I look for a more favorable condition of affairs for investment companies such as you represent.

Very truly yours,

F. G. WEBSTER.

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KOUNTZE BROTHERS, BANKERS.

New York, February 2, 1899.

Dear Sir—In reply to your favor of 26th January, we understand you desire an expression of opinion as to what rate of interest we think you should realize from investments maturing in next twenty years.

Considering the average yields of municipal and railway mortgages, such as your company could purchase on average of twenty-year maturities, and discounting somewhat the tendency of still lower rates as shown by returns of continental investments, we should consider an average rate of 3.30 per cent—or, say a range from 3.20 per cent to 3.40 per cent.

Very truly yours,

KOUNTZE BROS.

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TOWER, GIDDINGS & Co., BANKERS,  
105 Devonshire Street.

Boston, January 30, 1899.

My Dear Sir—Replying to yours regarding the probable average return on standard investments for the next twenty years, I would say that my opinion is that one may expect an average of about  $3\frac{1}{4}$  per cent. I put it at this figure in the belief that interest rates in this country and in Europe are to approach one another more closely. As I understand it, for the past twenty years the average rate in London, the mean between the Bank of England and the open market rate, has been just under 3 per cent. This has been

a period of very general political quiet. Tenser political conditions abroad, I am inclined to believe, will make for an advance in rates in London for the future. On the other hand, the completion of our great railroad systems and the tendency toward industrial consolidations here will make for permanently lower rates in this country. As you are not confined in your investments to a strictly savings bank basis, you ought, perhaps, to average better than  $3\frac{1}{4}$  per cent rate.

Very truly,

W. A. TOWER.

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HYAMS, MOORE & WHEELER,  
Bankers and Brokers.

New Orleans, February 20, 1899.

Dear Sir—In answer to your favor of the 14th inst., I beg to say that I would consider you might count upon realizing between  $3\frac{1}{2}$  to 4 per cent, certainly not over 4 per cent.

Yours truly,

ROBERT MOORE.

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117 Duane Street.

New York, January 31, 1899.

Dear Sir—You ask in your favor of the 26th inst. "what rate of interest I consider is safe for a life insurance company to count upon realizing on its total assets during the next twenty years." I understand that the present rate at which Equitable's assets are valued for surplus and dividend purposes is 4 per cent. I am inclined to believe that perfect safety requires that this rate should be gradually reduced so that your calculations may rest upon a solid basis of 3 per cent. Very truly yours,

CORNELIUS N. BLISS.

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681 Fifth Avenue.

New York, January 30, 1899.

Dear Sir—I am in receipt of your note of the 26th and in reply beg to say that it is rather difficult to form an estimate for the next twenty years as a basis for a life insurance company to count upon

realizing upon its assets, invested in such securities and mortgages as an institution of that character should hold. My own judgment, however, leads me to believe that it would be entirely safe to take 3 per cent as a basis for the company's business for a period of twenty years. Very truly yours,

LEVI P. MORTON.

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THE GORDON.

Washington, February 3, 1899.

Dear Mr. Alexander—Your letter has been forwarded to me in Washington, where I am detained by a commission to settle the difficulties between Canada and the United States.

As I understand your question, you wish me to state what would be a safe rate of interest in my judgment for the best class of investments during the next twenty years. This has, of course, nothing to do with taxes and expenses of the office, for which I suppose you make the necessary allowances.

The best bonds command from  $3\frac{1}{4}$  to  $3\frac{1}{2}$  per cent. The best mortgages  $3\frac{1}{2}$  per cent, although I hear of one as low as  $3\frac{1}{4}$  per cent. State and city securities on long time cannot be quoted over 3 per cent.

The question then resolves itself into how great decline, if any, will take place in the rate of money for the next twenty years.

Our enormous trade balances have accumulated vast sums of money in the country so that the present rate is probably below the average. On the other hand, most people believe that the rate of interest, which has been falling for years, will remain permanently on a lower basis.

I think, however, that we should make allowance for the enterprise and speculative tendency of the American people, and the enormous resources still to be developed in the country. Besides, you will always be able to make from your central situation, the large amount of money at your disposal, and your superior knowledge, many investments at a higher rate than the market.

I think, therefore, that 3- $3\frac{1}{4}$  per cent would be a fair and conservative estimate of what you would earn during the next twenty years.

I give my opinion with the greatest diffidence, as it is impossible to foresee many events, such as an European war, which would upset any calculation.

Very sincerely yours,

T. JEFFERSON COOLIDGE.



Chicago, February 7, 1899.

Dear Sir—In reply to your favor of 1st inst., will say: We think that 3 per cent is the maximum rate which any life insurance company should guarantee for the next twenty years. Yours very truly,  
WM. H. & J. H. MOORE.

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D. O. MILLS,  
15 Broad Street, New York.

January 30, 1899.

My Dear Sir—Your favor of the 26th inst. is received. In answer to your question as to what rate of interest would be considered safe for a life insurance company to count upon realizing on its total assets during the next twenty years, I should say, in my opinion, not over 3 per cent.

The Government will undoubtedly be able to refund in the "nineteen hundreds" at  $2\frac{1}{2}$  per cent.

Very truly yours,

D. O. MILLS.

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31 Nassau Street.

New York, February 9, 1899.

My Dear Sir—I am in receipt of your favor of 3d inst. asking my opinion as to what rate of interest I would consider it safe for a life insurance company to count upon realizing on its total assets invested in such securities and mortgages as an institution of its character should hold, during the next twenty years.

This is a very important question, and so many elements must be considered as likely to affect the rates of interest during such a lengthened period, that, in attempting to answer it, it appears to me one must be guided in coming to a conclusion by making a comparison with the past.

Recalling the financial panic in England in 1847, known as the "railroad panic," resulting from the railroad mania that had prevailed for the preceding year or two, and which was no doubt precipitated and aggravated by the total failure of the potato crop in Ireland during the autumn of that year, the Bank of England rate of interest advanced to 10 per cent, and to allay the panic the Government suspended the Bank act. This brought relief, and the rate of interest gradually fell until it reached 2 per cent, and con-

tinued at that rate until the autumn of 1852. During the period of liquidation and business stagnation (from 1847 till 1852), railroad shares and railroad debentures, but especially the former, fell enormously in price and, indeed, as the result afterwards showed, far below their intrinsic value. In 1854 and 1855 first-class railroad debentures bearing interest at the rate of 5 per cent per annum, payable semi-annually, could be purchased at par or even with a concession on that price, and such debentures I do not believe could now be purchased so as to yield more than  $2\frac{1}{2}$  per cent. The low price of these securities was doubtless in some measure due to the distrust created by scandalous railroad management. During this same period, and while the Bank of England rate continued at 2 per cent, I remember hearing shrewd, intelligent business men alleging that money would never again be as valuable as it had been, owing to the great increase of capital; yet since that time the Bank of England rate has been advanced several times to 10 per cent during seasons of panic, and to 3, 4, 5 and 6 per cent when there has been no panic. It is now very difficult, if not impossible, to make good investments there that will pay more than 3 per cent per annum.

So much for the rates of interest in England during the past fifty years, but let us now look nearer home. That there has been an enormous increase of wealth in this country during the past twenty or thirty years; or, in other words, of capital, and a consequent reduction in the value of money as evidenced by reduced rates of interest, every one engaged in business must have perceived. Take one case out of many that might be cited as an illustration. The N. Y. Central & Hudson R. R.R. Co. made a mortgage on its property in 1873 to secure an issue of bonds to the extent of \$40,000,000, bearing interest at the rate of 7 per cent per annum. When these bonds were first issued they were sold at par, or at a nominal premium. Recently that same company has made a new issue of bonds, bearing  $3\frac{1}{2}$  per cent interest, or exactly half the rate that the bonds bore that were issued in 1873, and these bonds are now selling at a premium of fully 12 per cent, and at that price will yield the investor a return of but about  $3\frac{12}{100}$  per cent per annum. Other cases where a similar comparison can be made, but differing only in degree, will readily occur to you. It may be remarked, however, that the lengthened period which recent issues of railroad bonds have to run—in some cases fifty or one hundred years—would seem to indicate that the makers of these obligations do not anticipate any great fall in the value of money for a long time to come, and that we have now reached, or are rapidly approaching, a minimum rate. Be that as it may, it does appear to

me that we have reached a point where we must make up our minds that owing to the large increase of capital in the country, the rates of interest have become permanently lowered, but whether they will go still lower, and what they may go to during the next twenty years, of course no one can foretell. There are various matters that will undoubtedly influence the rates for money. Amongst these may be mentioned our present unsettled monetary condition, and should we have such legislation as has been promised by the present Government, and the greenbacks and other fiat money should be retired, we would have a smaller circulation, and that in itself should secure a higher return for money, for a time at least. Then, there is a probability that large amounts of capital will be required for industrial and other mercantile purposes in Cuba, Porto Rico, the Philippines and the Sandwich Islands, as well as for the development of many industries in our own country proper, which are still in their infancy, and this may, and no doubt will, in some measure affect the rate for money, from time to time; and I should say that, taking all these elements into account, and others which probably exist now or may come into operation hereafter, and which do not occur to me, I think it would not be safe to estimate the average rate of return that can be counted on on first-class investments during the next twenty years at over 3 per cent.

I make these suggestions to you very hurriedly, and remain, Yours very truly,

JOHN S. KENNEDY.

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New York, January 30, 1899.

Dear Mr. Alexander—Replying to your letter under date of the 26th inst. as to what rate of interest I would consider it safe for a life insurance company to count upon realizing on its total assets, invested in such securities and mortgages as an institution of this kind should hold during the next twenty years, would say that, in my judgment, it would not be safe to count on more than 3 per cent. Yours very truly,

MARCELLUS HARTLEY.

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N. Y. CENTRAL & HUDSON RIVER RAILROAD CO.,  
Grand Central Depot.

New York, February 3, 1899.

Dear Sir—A careful consideration of the continued tendency in this country to low interest-bearing money; the fact that New York

has become, and will permanently remain, one of the financial centers of the world; that the growing indebtedness of Europe to the United States is likely to increase rather than diminish, all indicate that it would be unsafe for a life insurance company to calculate upon a better rate than 3 per cent for a period of twenty years.

Yours very truly,

CHAUNCEY M. DEPEW.

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96 AMES BUILDING,

Boston, February 6, 1899.

My Dear Sir—In response to your favor of the 27th ult., as I look back over the last twenty years, which have certainly been full of variety for all who have had occasion to borrow or to loan money, and realize the rate which the Government has paid for its money, viz., about 4 per cent in 1879 and 1880, down to 3 per cent in 1898, it seems to me that the rate for prime investments has correspondingly fallen, and that where in 1879 or 1880 you could look forward for twenty years and expect to realize  $4\frac{3}{4}$  to 5 per cent, in 1899 you could not look forward for the same length of time and expect to average over  $3\frac{1}{2}$  per cent to  $3\frac{3}{4}$  per cent.

I do not know whether, under the law, you are obliged to invest certain portions of your money in certain kinds of securities, but if you are practically free, except as regards good business judgment as to safety, it seems to me that you ought to be able to realize  $3\frac{1}{2}$  per cent, on the average, for the next twenty years.

Yours very truly,

SAMUEL CARR.

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Hennen Building.

New Orleans, February 9, 1899.

Dear Sir—Your letter of the 1st current has come to hand, and the subject inquired of has received much consideration from me. It is my fixed opinion that no safe life insurance company can count upon realizing more than 3 per cent for the next twenty years on its total assets, invested in such securities and mortgages as an institution of this kind should hold. The history of the world shows that as every country grows older and increases in wealth, population and prosperity, there is a decline in the rate of interest. There has been a notable decline in the rate of interest in this country in the last

twenty years, particularly in all safe public securities. Even in this section, where the last forty years has been filled with war, reconstruction and pestilence, the rate of interest has been cut in two. In 1874 the interest on our State bonds was 7 per cent. Now it is 4, and the bonds are selling way above par. At that time the interest on the debt of the city of New Orleans was 6, 7, 8, and even 10 per cent. In 1892 she refunded her whole debt at 4 per cent, and her 4 per cent bonds are worth 112 in the open market. Up to a very few years ago the current bank rate in this city was 8 per cent even when money was plentiful. It rarely goes above 6 at this time, and generally runs at 4. The current rate of interest for mortgages used to be 10 per cent (obtained by evading the usury laws); now it is 5 and 6.

I see nothing that can stop this tendency to cheap money, except general war and destruction of values. It would, in my judgment, be the height of unwisdom for any institution that measures its gain and its stability by the current rates of interest for safe investments to close its eyes to these patent facts.

Yours very truly,

EDGAR H. FARRAR.

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Boston, February 16, 1899.

Dear Sir—In reply to your question regarding the future normal rate of interest on the safest investments, I should say positively three (3) per cent should be the maximum rate on which you could safely base computations of reserve. I think it more likely that two and a half ( $2\frac{1}{2}$ ) per cent will be the normal rate within a very short period than that the safe rate will be above three (3).

I have never witnessed a period in which the accumulation of capital in this country has proceeded with the rapidity of the last decade, even including the period of panic and depression. That capital consists in an excess of useful products beyond immediate consumption when fully met. Unless we find a large outlet for the safe export and investment of the proceeds of this surplus, I am of opinion that capital will accumulate in this country more rapidly than general intelligence which is necessary to its use. It will be many years before many States of this country come to the conclusion that, where the equal rights of creditors are not respected, or where preferences are given to debtors, capital cannot be safely invested. Neither can capital be safely invested in a community which advocates fiat money, and would force cheap money of any



kind upon creditors without respect to the unit or standard value of the world.

Again: Will it be possible for a great mass of the people who do the work of this country to lift themselves above the level of mere manual laborers, so as to become capable of conducting the work in which fine mechanism constitutes the capital as fast as modern science will develop the opportunities? In the last analysis, if you can forecast the mental energy which may be developed and the intelligence which renders the service of capital and labor absolutely mutual, you may be able to make a clearer forecast of the future rate of interest. I have not that confidence in the progress of intelligence in State legislation, or in that progress of the comprehension of the true relation of labor and capital, that would lead me to hope for such great opportunities for the use of capital to the mutual benefit of all concerned as would make an active and continuous demand—carrying the rate of interest above two and a half ( $2\frac{1}{2}$ ) per cent, and certainly not above three (3) per cent. Yours very truly,

EDWARD ATKINSON.

P. S.—Another factor must enter into this computation, namely, the present tendency of some legislators to regard great insurance corporations as cormorants, which induces a constant effort to attempt a larger and larger measure of meddlesome and harmful control, in place of resting upon complete publicity of accounts, another indication of the present lack of any true consideration of this somewhat complex subject.

E. A.

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Chicago, February 9, 1899.

My Dear Sir—Answering your favor of the 1st inst., would say that for purposes wanted 3 per cent would probably be safest figure for you to count upon. My judgment, however, is that you will realize not less than  $3\frac{1}{2}$  per cent. Yours very truly,

MARSHALL FIELD.

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226 Devonshire Street.

Boston, January 30, 1899.

Dear Sir—Your letter of January 27th has had my careful consideration. My opinion is that the highest rate of interest which it would be safe for a life insurance company to count upon realizing

upon its total assets, invested in such securities and mortgages as a company such as yours should hold, during the next twenty years, would be  $2\frac{3}{4}$  per cent.

Yours faithfully,

J. R. LEESON.

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New Orleans, February 8, 1899.

Dear Sir—Yours of the 1st inst. is received. In my opinion you may count on 3 per cent interest on your assets. Yours truly,  
ISIDORE NEWMAN, Sr.

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23 Broad Street,

Boston, January 28, 1899.

My Dear Sir—I am in receipt of your valued favor of yesterday's date and its interesting contents have my careful attention.

It is a hazardous thing for any one to make a prediction respecting rates of money for a long period in the future, but the general tendency toward lower rates, due to the constant increase of money in this country, must be apparent to everyone who has given the subject much thought, and I should not consider it prudent for so long a period as the next twenty years, with an institution of your character to count upon realizing on such securities as I assume you would consider it prudent to have your assets invested in, more than 3 per cent per annum, as in my judgment we are rapidly approaching this basis.

Very sincerely yours,

HENRY R. REED.

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NEW ORLEANS COTTON EXCHANGE.

New Orleans, February 9, 1899.

Dear Sir—Replying to your favor of the 1st inst., beg to say, from my personal knowledge of the attractive opportunities it offers for safe investment of capital, its great future for development, agriculturally, commercially, and in manufactures, I believe the South will soon receive the attention of conservative investors, who for years to come could anticipate a net revenue of at least 4 per cent on unquestioned security, which could be readily realized upon if desired.

Respectfully,

JOHN M. PARKER, President.

## PHILADELPHIA AND READING RAILWAY COMPANY.

Philadelphia, February 2, 1899.

Dear Sir—I have your letter of February 1, and note your inquiry as to what I think a life insurance company may count upon realizing on its total assets invested in such securities and mortgages as an institution like yours should hold during the next twenty years.

I do not feel myself competent to advise on such a subject, having no special knowledge other than any business man may have, and I can only say that it seems to me that so far as railway bonds and mortgages on Eastern real estate are concerned, it is not likely that more than  $3\frac{1}{2}$  per cent can be realized.

Yours truly,

J. S. HARRIS, President.

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AUGUSTUS P. LORING,  
Counsellor at Law,  
22 Congress Street, Boston.

Boston, Mass., January 28, 1899.

My Dear Sir—I have your communication of the 27th, making inquiry about the rate of interest to be expected for ten years.

The rate on investments made now is a very different question from the rate you can expect to receive investing ten years hence.

On an investment made to-day, I should think you could safely count on  $3\frac{1}{2}$  per cent.

I am not sufficient of a prophet to predict the rate to be realized on investments made ten years hence.

Yours truly,

A. P. LORING.

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THE GALLATIN NATIONAL BANK.  
No. 36 Wall Street, New York.

February 28, 1899.

My Dear Sir—Replying to your favor of the 23d inst., I beg to say that in my opinion  $3\frac{1}{2}$  per cent per annum would be a very fair return on the high grade of securities required by a company of your standing. Very truly yours,

F. D. TAPPEN.

### APPENDIX III

COMPARISON OF UNDERWRITING AND INVESTMENT  
RESULTS OF TWENTY-FIVE LARGEST UNITED  
STATES FIRE INSURANCE COMPANIES





## COMPARISON OF UNDERWRITING AND INVESTMENT RESULTS OF TWENTY-FIVE LARGEST UNITED STATES FIRE INSURANCE COMPANIES

FROM 1905 to 1927 the annual gain from investment operations of the 25 largest fire insurance companies of the United States has averaged twice the annual gain from underwriting. As might be expected the results of the 25 companies show a wider variation between companies in underwriting profits than in gains from investments. The ratio of annual net underwriting gain to total admitted assets in the best company averaged for the period 6.71 per cent against a *loss* of 1.25 per cent for the poorest company. The ratio of annual net gain from investment to total admitted assets in the best company averaged 6.37 per cent against 2.85 per cent for the poorest company.

While it is never possible to present a picture complete in all details in such a comprehensive study without confusing the major issues that are being analyzed, it is believed that from the long-term viewpoint the general results shown in this analysis are fairly comparable. The method of compilation was as follows:

It was assumed that the total amount of capital involved in the operation of each company was fairly represented by the total admitted assets shown in the company's return to the New York Insurance Department each year. In many cases, however, assets increased or decreased rapidly during the year and it did not seem proper to measure the accomplishment of a company on the basis of an amount of capital employed that was not approximately maintained during the year. The base for measuring underwriting and investment profits was, therefore, determined by the average of admitted assets carried at the beginning and at the end of each year.

With respect to *underwriting* results, these figures were compiled under the direction of Mr. Alfred M. Best of New York. Underwriting gain for each company was computed each year by subtracting from premiums earned the losses and expenses incurred and then adding or subtracting 40 per cent of the gain or loss in unearned premiums. The exact percentage of increase or decrease in unearned premiums that should be considered as underwriting gain or loss is, of course, open to a great deal of

discussion. It is certain that the percentage should vary in different companies and even in the same company for different years. But if it is attempted to refine the analysis too greatly, some of the major factors may be obscured and it is more satisfactory to accept a reasonable percentage applicable to all companies for the entire period and then mentally make such reservations with respect to individual companies as intimate knowledge of their history may justify.

Accepting total admitted assets as the capital employed in the two branches of underwriting and investment, we are again confronted with a problem on which opinions will vary widely with respect to the determination of just what proportion of the rental for this capital should be charged to the underwriting department and what proportion to the investment department. Our more or less arbitrary division of 50 per cent to underwriting and 50 per cent to investment perhaps favors the investment department, but it is partly justified by its simplicity, and individual students of the subject can readily make whatever revisions they desire from these computations by changing this division of assessment for rental of the capital employed in accordance with their own ideas. On the charts, pages 325 to 350, the yearly riskless rental rate has been indicated by a dotted line and the average rate for the period by an unbroken line.

Our method for calculating annual gains from *investment* operations has been explained in some detail in Chapter IV. In this study of underwriting and investment results we have included total investment gains from real estate, mortgages, collateral loans, bank deposits, bonds and stocks and have applied this gain against average admitted assets carried during the year. Gross income and appreciation or depreciation from each class of assets has been regularly used except in the case of real estate where we have deducted taxes and cost of repairs from gross returns. The stocks of subsidiary insurance companies have been computed at the values reported to the New York Insurance Department, which from an investment viewpoint are in some cases substantially lower than actual cost or current market values. For example, the Firemen's Insurance Company of Newark shows theoretical losses for both 1925 and 1926 as a result of the arbitrary valuations placed on their increasing investment in New Jersey Investment Company stock. Since uniform practice has been followed in all companies, however, allowance can readily be made for any unusual temporary

influence from this artificial valuation method by those acquainted with the investment operations of the companies involving substantial blocks of insurance stocks. Over a long period the changing values of insurance stocks are, in large part, reflected in their capital and surplus and, consequently, in the book value prescribed by the New York Insurance Department.

With the accounting methods now generally followed, total annual investment accomplishment of each company, measured according to the plan that we have advocated, may be readily ascertained by addition of the five following factors:

1. Difference between market and book value of investments at the end of the year, less the difference between these values at the beginning of the year.
2. Net gain above book value on all investments sold.
3. Adjustments made during the year in book values.
4. Gross cash dividends and interest payments received on stocks, bonds, mortgages, collateral loans, and bank deposits, plus net rental payments (after repairs and taxes) on real estate.
5. Interest accrued on bonds at the end of the year, less interest accrued on bonds at the beginning of the year.

It is unfortunate for our purpose in attempting to develop investment experience tables of the leading fire insurance companies that their reports on investment operations for a number of years have been based upon arbitrary or fictitious figures which, in fact, have generally represented a moving average of the market values during times of violent fluctuation. The effect of using these arbitrary figures in our experience tables will simply be to minimize the gains and losses recorded in certain years. It will have practically no effect upon the comparison of results for the entire period. The results shown in our investment experience tables and charts may, however, be accepted as a record of the complete existing facts without introduction of theoretical values except in so far as the New York Insurance Department or the National Convention of Insurance Commissioners' valuations of securities for certain years represented some adjustments from the existing market values. The New York Insurance Department or Convention valuations for these years were determined as follows:

For the year 1907—the market value for the first day of each month of the year plus the market value as of December 31, 1907, divided by 13.

For 1914—the market value as of June 30, 1914.

- For 1917—the average of market values November 1, 1916, and February 1, May 1, August 1, and November 1, 1917.
- For 1918—the average of the appraised value as previously ascertained for 1917 and the market value as of November 30, 1918, with the exception that all Liberty bonds were appraised at par.
- For 1919—the average of previously appraised value for 1918 and actual market value as of November 1, 1919, with the exception that all Liberty bonds bought through subscription at par were so appraised, otherwise, they were carried at market value.
- For 1920—the average of previously appraised value for 1919 and actual market value as of November 1, 1920, with the exception of Liberties subscribed at par which were appraised at par, otherwise, at the market value.
- For 1921—all securities acquired during the year appraised at December 31 market values. All securities acquired prior to 1921 carried at the average of previously appraised 1920 values and November 1, 1921 market values. Liberties acquired at par through subscription carried at not less than par. Those acquired otherwise, at purchase price or December 31 market values, whichever was higher.

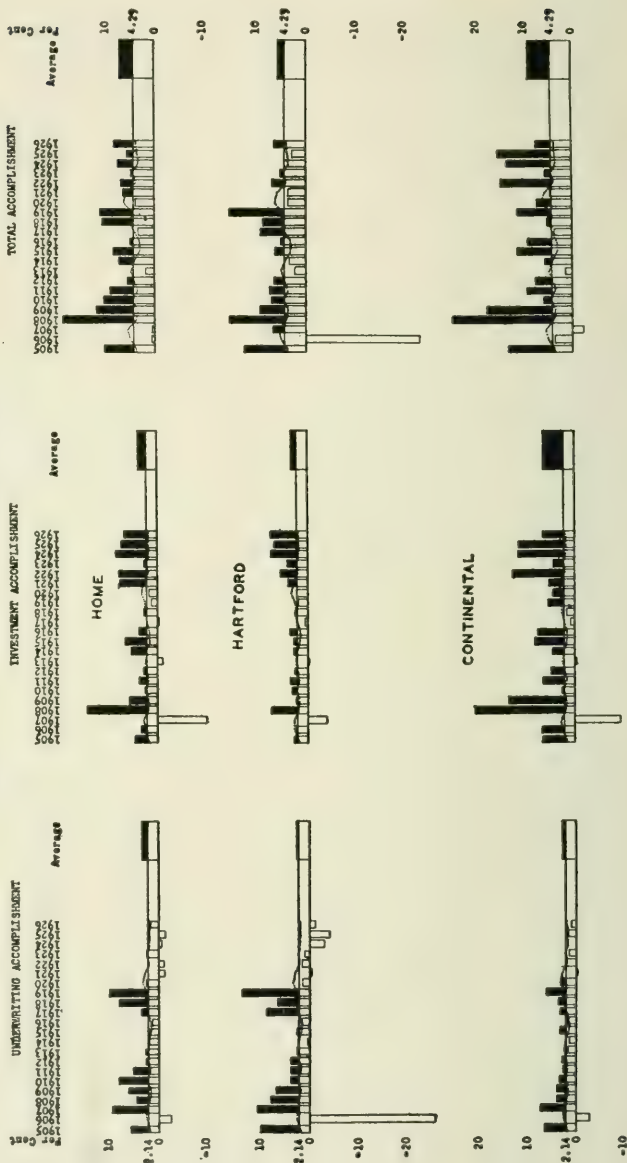




# UNDERWRITING AND INVESTMENT ACCOMPLISHMENTS OF THE TWENTY-FIVE LARGEST FIRE INSURANCE COMPANIES IN THE UNITED STATES

YEARLY - 1905-1927

[BASED ON TOTAL ADMITTED ASSETS]



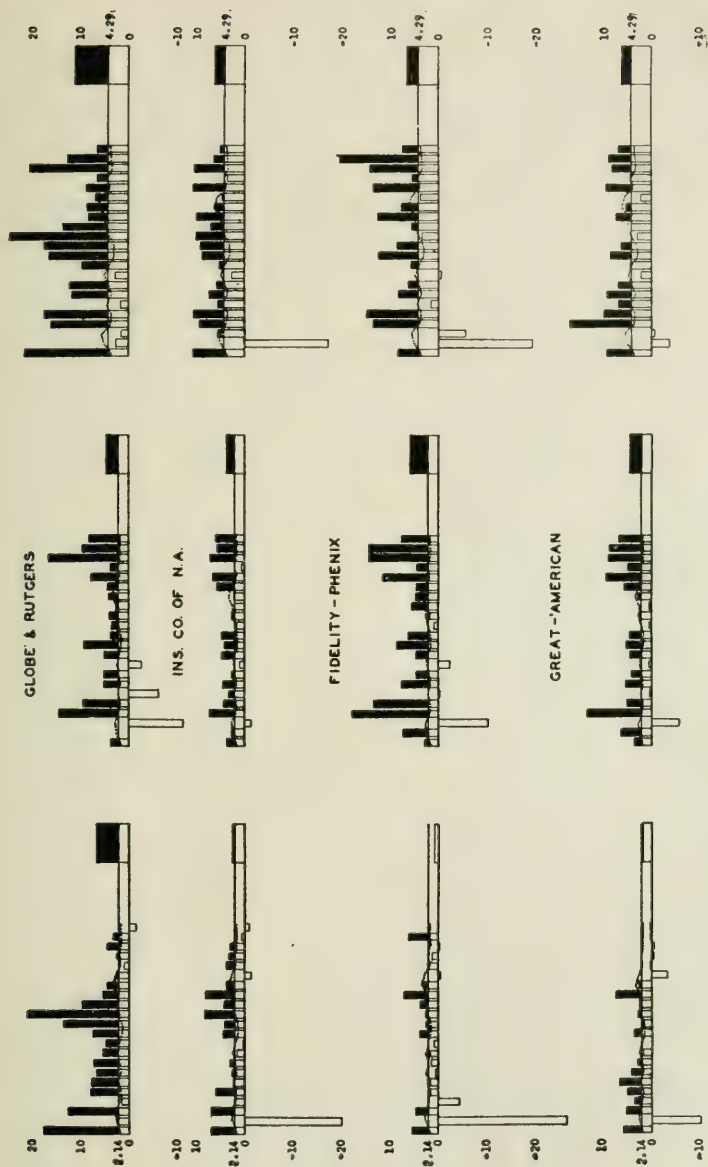
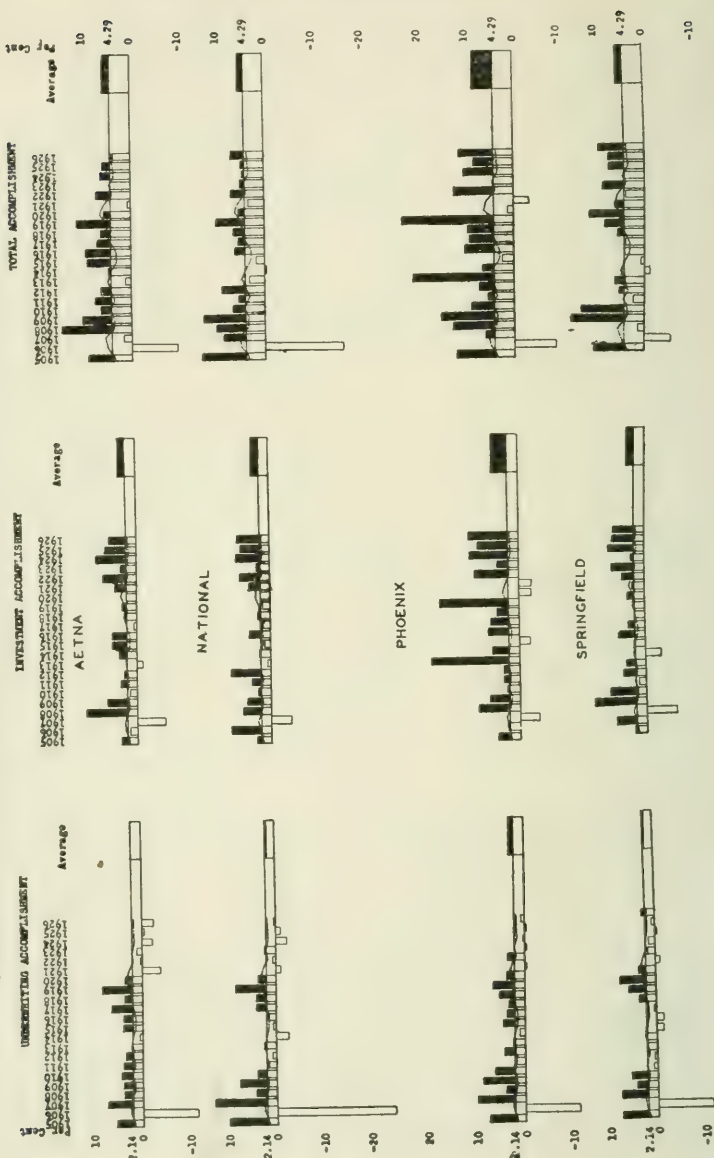


CHART XXXI (Continued)

## UNDERWRITING AND INVESTMENT ACCOMPLISHMENTS (continued)



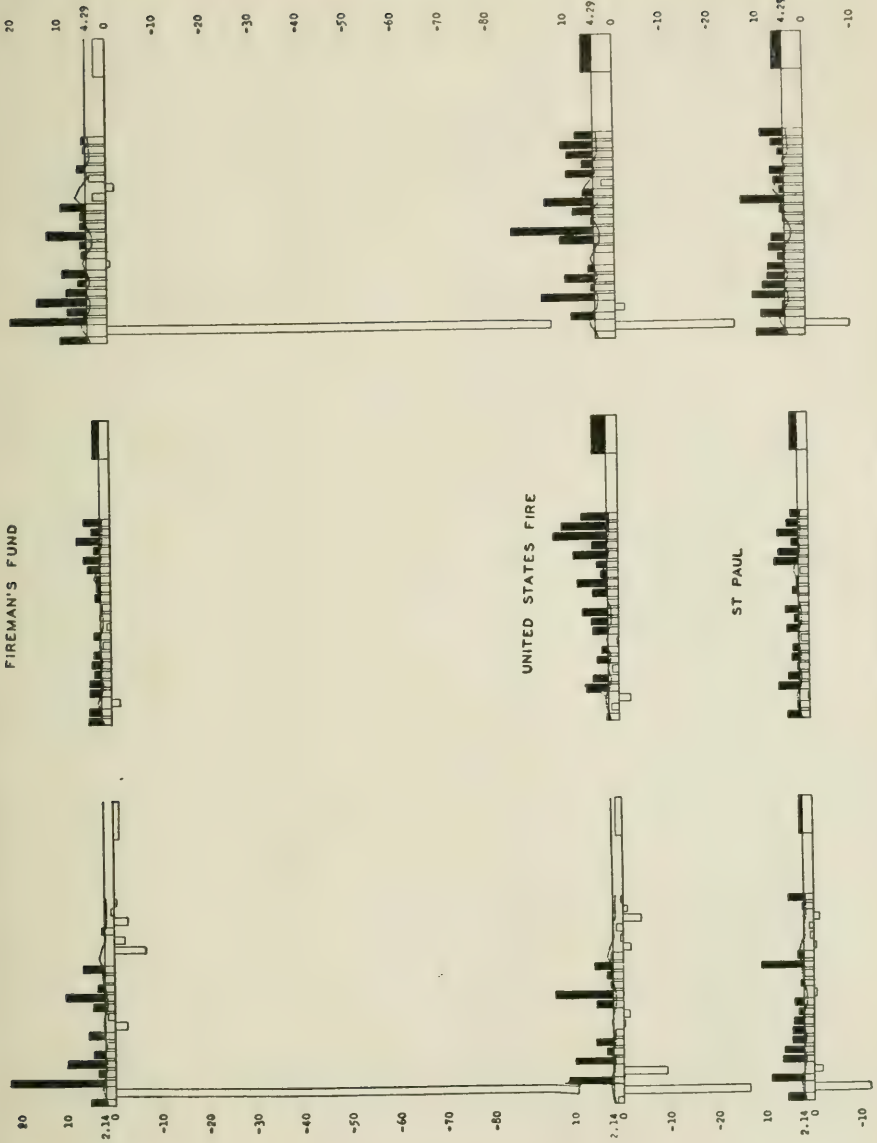
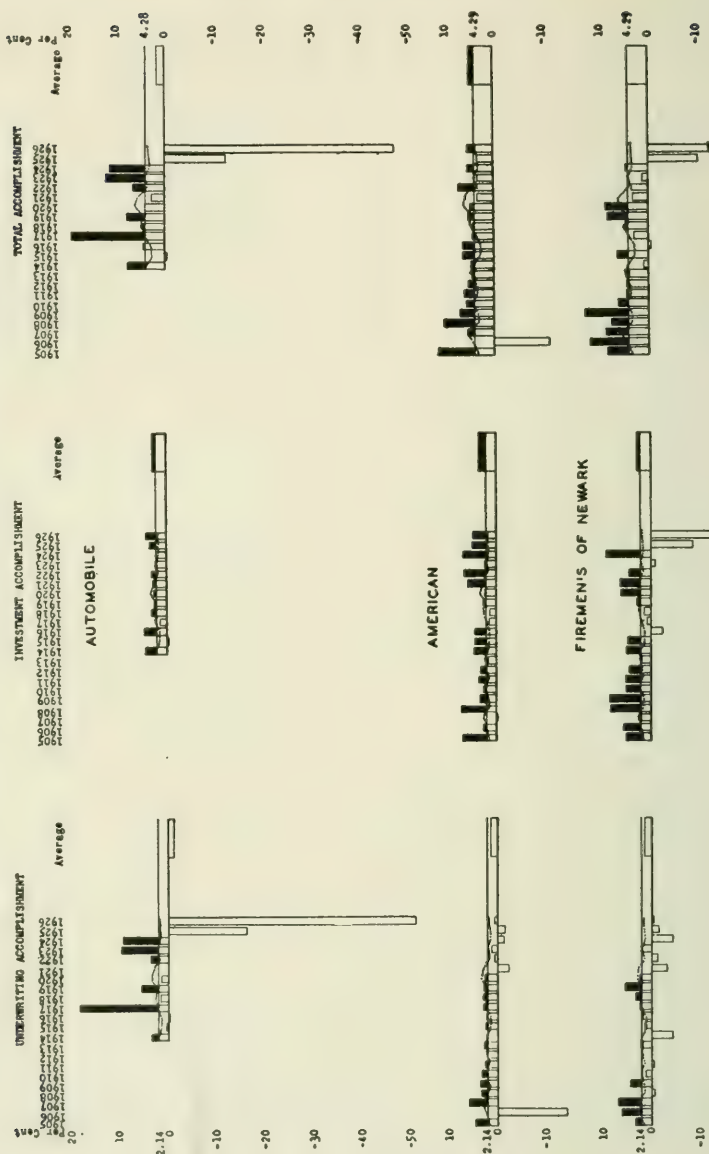


CHART XXXI (Continued)

## UNDERWRITING AND INVESTMENT ACCOMPLISHMENTS (continued)





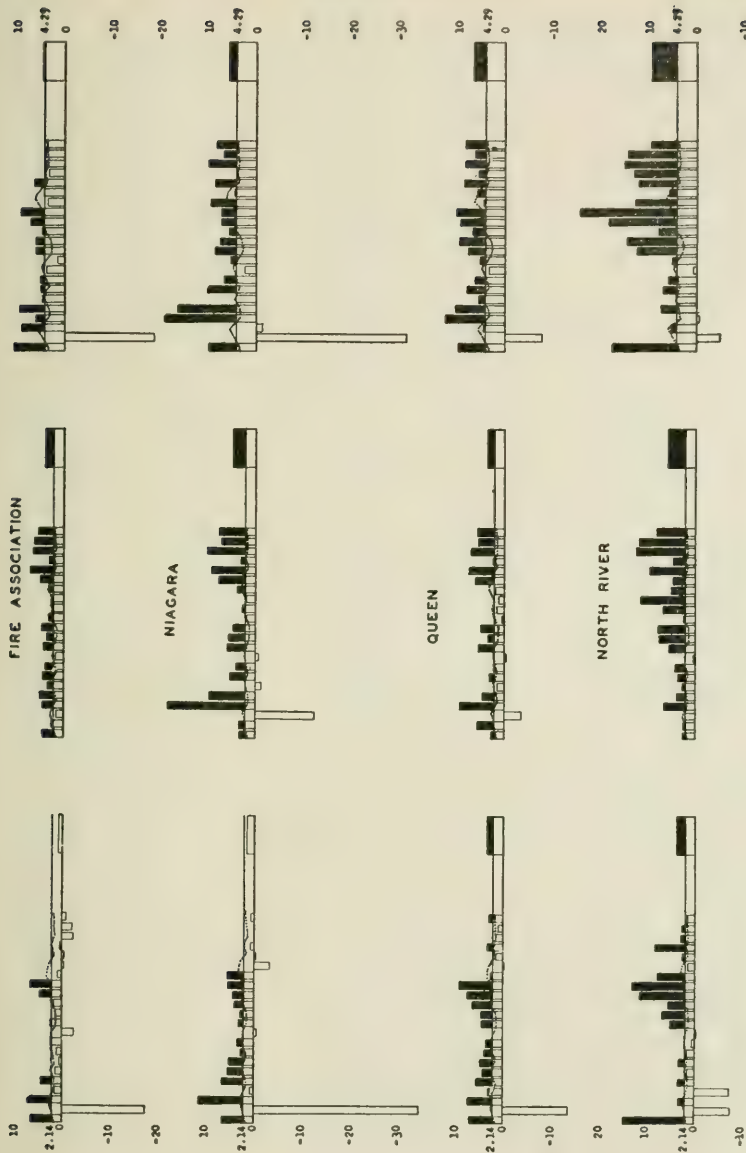
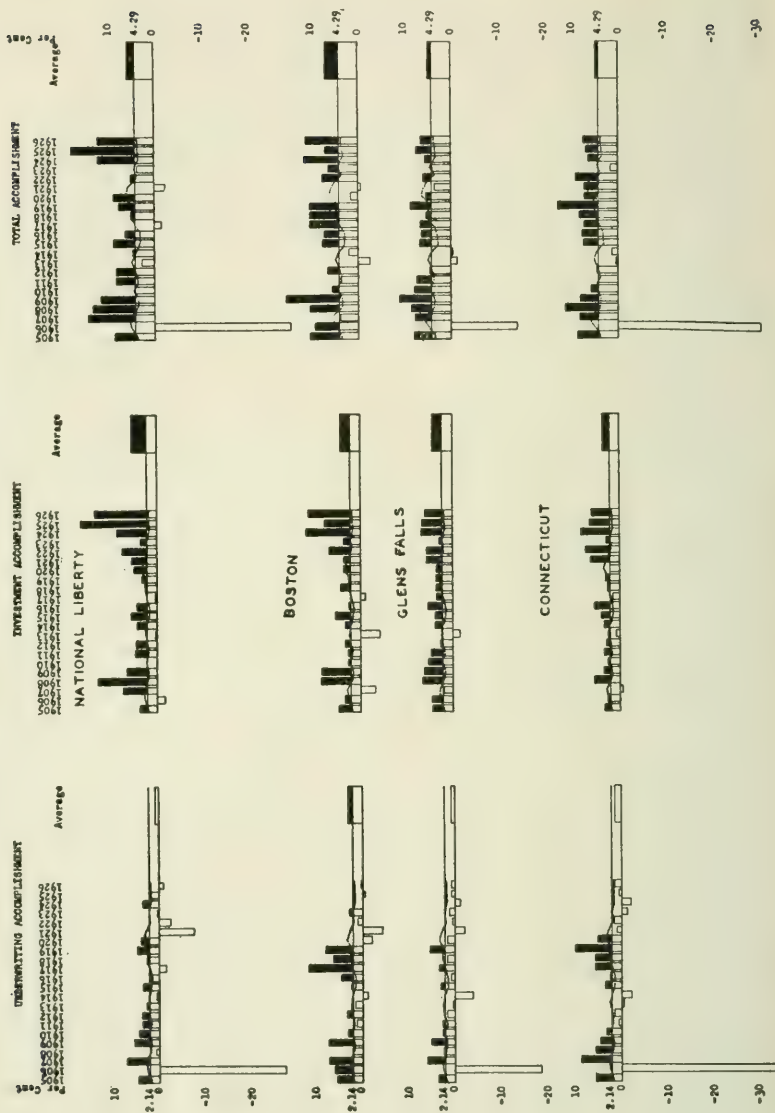


CHART XXXI (Continued)

## UNDERWRITING AND INVESTMENT ACCOMPLISHMENTS (concluded)



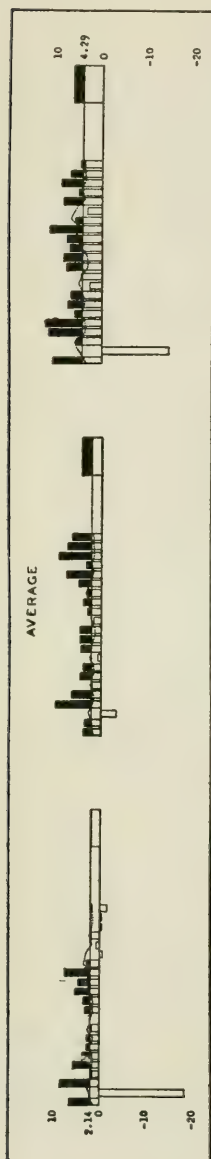


CHART XXXI (Concluded)

UNDERWRITING AND INVESTMENT EXPERIENCE TABLE OF THE  
25 LARGEST FIRE INSURANCE COMPANIES IN THE UNITED STATES  
1905 - 1927

[BASED ON TOTAL ADMITTED ASSETS]

Companies	1905		1906		1907		1908		1909		1910		1911		1912		Companies
	X	%	X	%	X	%	X	%	X	%	X	%	X	%	X	%	
American	5.8	3.4	9.2	-11.3	1.8	-2.3	7.6	-2.9	1.4	10.6	1.6	6.3	4.7	3.5	1.7	3.6	2.8
Automobile	5.7	4.8	10.5	6.1	3.2	9.1	7.2	-3.3	1.9	2.1	8.4	10.5	1.4	2.6	3.7	6.3	2.1
Continental	5.6	3.7	8.8	-33.6	2.7	-30.9	6.9	-7.7	8.2	5.9	5.6	11.5	7.4	8.2	3.1	2.6	3.7
Fire & Marine	6.6	6.5	13.1	-2.9	6.7	-3.8	7.3	-9.6	-2.1	4.0	20.8	24.8	4.0	13.8	11.8	3.1	4.1
Fire & Marine	6.5	4.5	10.8	-7.6	1.2	-19.2	7.7	-10.1	9.0	4.4	17.9	33.2	4.6	13.1	9.9	1.4	2.3
Fireman's Fund	5.1	4.9	10.0	-97.8	4.7	-92.1	22.2	-4.9	20.3	3.7	4.5	8.2	10.2	4.6	14.8	4.8	3.7
Fireman's Fund	3.6	5.1	6.7	6.2	5.8	12.1	7.0	-2.0	9.0	-6.6	8.5	7.9	4.6	8.1	13.1	3.2	5.2
Fire & Marine	1.8	3.8	21.0	-18.5	5.5	-14.2	12.0	-13.9	1.5	2.3	16.5	16.8	5.9	6.1	12.4	1.7	4.7
Great Amer.	5.8	3.6	9.4	-10.2	6.4	-3.8	5.2	-5.9	-7.7	3.6	13.4	17.0	5.0	5.1	10.1	6.7	-3.1
Harford	10.0	2.8	12.8	-27.0	2.4	-24.6	10.8	-4.0	6.8	7.9	7.6	35.5	6.9	2.4	9.3	3.9	3.1
Home Co. of N.Y.	7.0	4.9	10.2	-26.5	2.8	-17.7	10.9	-10.2	7.7	4.6	14.4	29.0	6.2	5.8	12.0	5.1	2.5
National Lib.	10.1	3.7	13.3	-94.8	8.6	-16.2	13.0	-4.1	6.9	4.3	6.0	30.3	7.9	5.1	13.0	6.1	2.9
National Lib.	4.8	3.9	8.7	-27.4	-1.9	-29.3	7.1	-7.2	14.3	-7.7	12.8	13.5	5.3	6.5	11.8	4.3	0
Phenix	14.9	2.9	17.8	-24.6	2.3	-11.3	13.2	-12.4	-14.2	2.8	19.3	39.1	5.6	5.6	16.1	1.4	-3.2
Phenix	1.6	4.5	12.1	-11.2	2.6	-8.6	10.0	-4.0	6.0	4.1	8.8	17.9	9.0	6.7	15.2	6.3	2.7
Queen	3.0	2.9	9.9	-13.5	5.6	-7.9	8.4	-3.7	9.7	3.1	9.4	12.5	5.6	4.7	10.3	4.2	1.4
St. Paul	7.1	2.8	10.4	-11.8	6.7	-9.2	7.4	-6.2	9.3	-14.9	6.9	14.8	4.4	13.0	9.4	2.6	2.0
U.S. Fire	1.4	2.7	4.3	-26.6	1.6	-25.0	11.7	-2.6	9.1	-9.1	7.1	-2.0	10.1	5.4	15.5	3.6	1.4
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1.46
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Rank	120.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	110.86	144	142.39
Average	6.87	3.99	10.86	-18.39	3.68	-14.51	8.84	-3.14	5.40	3.70	9.93	13.63	5.92	6.39	12.31	5.94	1

[illegible][illegible]

TABLE VIII



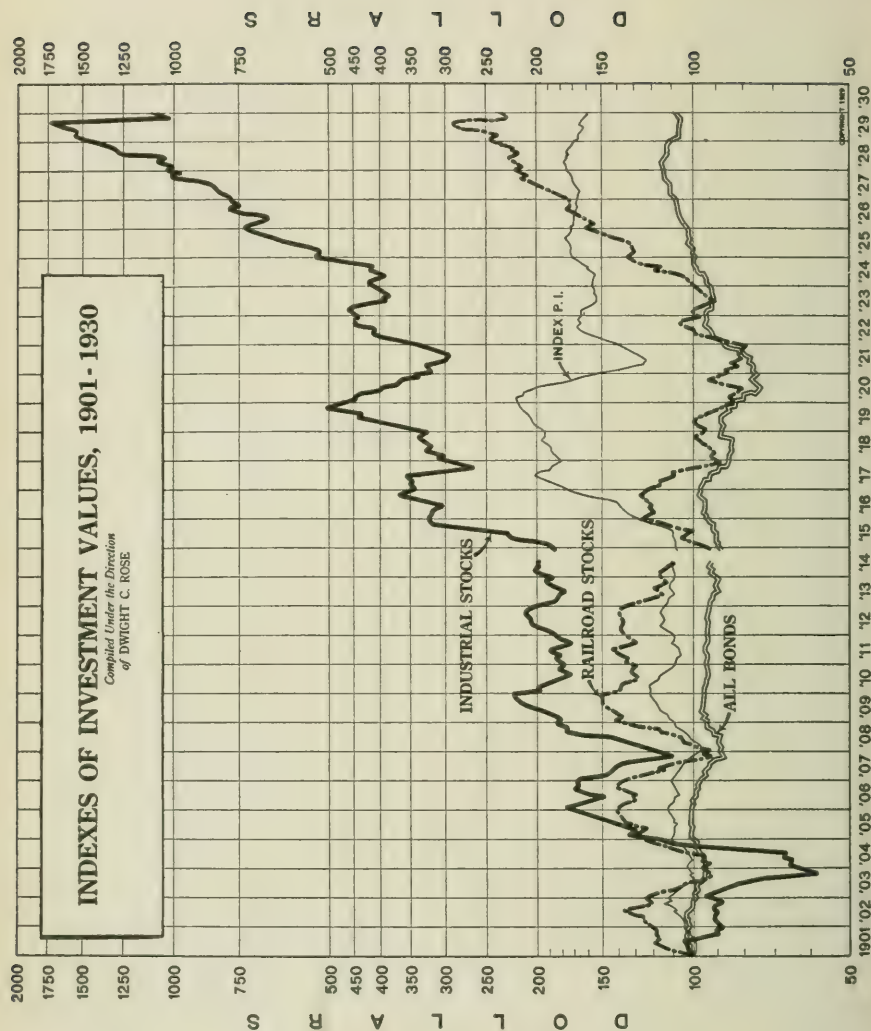


REVISED CHARTS XX AND XXVII  
TO INCLUDE THE STOCK MARKET PANIC OF 1929

These *up-to-date* charts may be substituted for the ones shown on pages 166 and 242-3.

The new chart of Industrial Stock Values shows, for each month, the extreme high and low as well as the average values.

D. C. R.





# INVESTMENT PRINCIPLES

## PRINCIPAL

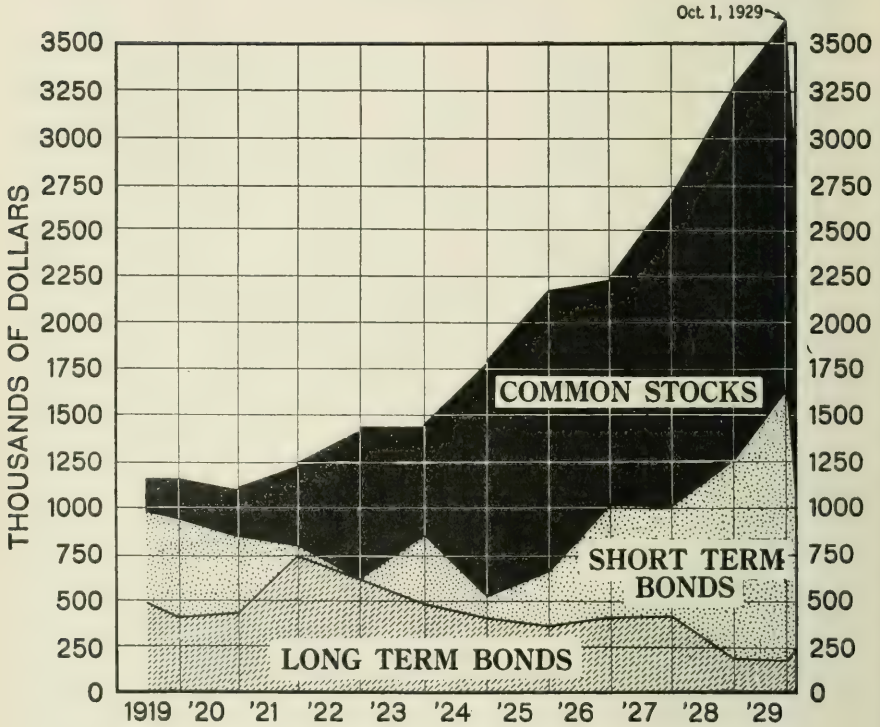


CHART XXVII(1)

Note: it should be observed that the history of this fund begins at the height of the 1919 bull market, includes the severe depression of 1920-21, the mild depression of 1923 and the stock market panic of 1929.

Because of the sudden severity of price movements during the last quarter of 1929 the condition of the fund at the beginning of that



IN PRACTICE

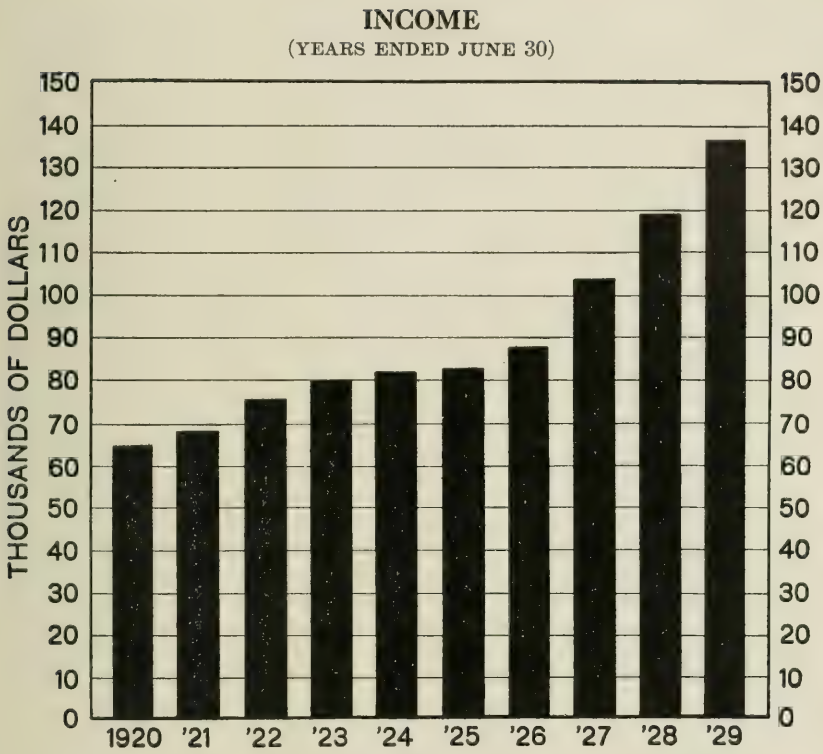


CHART XXVII(2)

quarter is portrayed. It was necessary to introduce this intermediate point in order to show how, within the limits of human ability and foresight, the fundamental investment principles were actually applied during this unusual period.



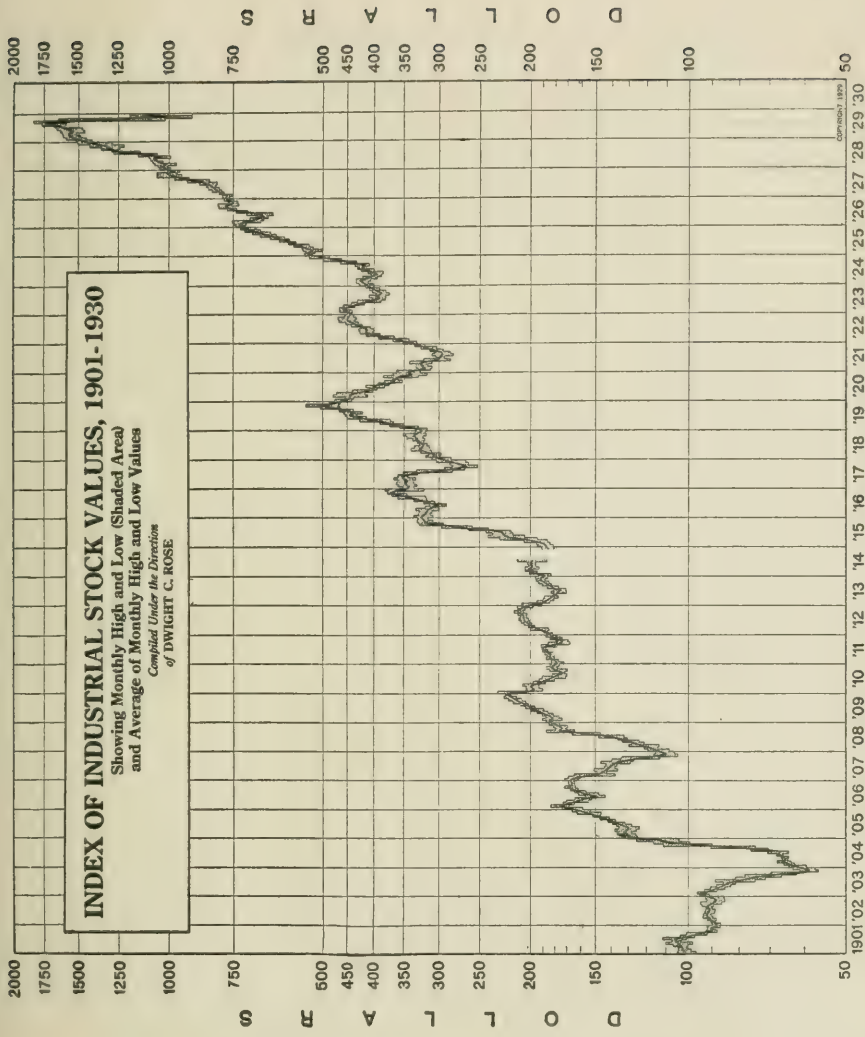


CHART XX(a)



## APPENDIX IV

### INVESTMENT POLICIES AND ACCOMPLISHMENTS OF TWENTY-FIVE LARGEST UNITED STATES FIRE INSURANCE COMPANIES





COMPARISON OF INVESTMENT POLICIES AND ACCOM-  
PLISHMENTS OF TWENTY-FIVE LARGEST UNITED  
STATES FIRE INSURANCE COMPANIES  
1903-1927

IN THIS study we have analyzed the general policy followed by each company with respect to proportions of total assets maintained in each major type of investment, and have also measured the effectiveness of the varying policies in terms of actual investment accomplishments.

The findings of this analysis are portrayed graphically on the following pages. The study goes back to January, 1903, the earliest date on which the essential data could be obtained. The experience of each company is illustrated on a separate chart, the lower part of which indicates the percentage of total invested assets carried each year in:

- 1—Real Estate
- 2—Mortgages and Collateral Loans
- 3—Bank Deposits
- 4—Bonds
- 5—Preferred Stocks
- 6—Common Stocks

The upper part of each chart shows the percentages realized on these invested assets in the form of income and market appreciation. Our method of measuring investment returns for each year has been explained in some detail in Chapter IV and Appendix III.

Several insurance companies during this period expanded their businesses by obtaining control of other insurance companies through purchase of a majority of the capital stock. Although this stock is carried as an investment, it should more properly be considered as an extension of the insurance business since the parent company is in control of the acquired subsidiary. Also, the actual investment worth of such subsidiary companies is difficult to obtain from time to time, and the investment results shown in the annual reports have been dependent upon the accounting procedure that the parent company has chosen to follow. In the important cases insurance investments of this type have amounted to 25 per cent or more of total stocks held, and in order to get a clearer picture of investment experience not confused by a large overinvestment in more or less

private enterprises of which the insurance company itself was the active manager, we have eliminated these unusual investments from our tables.

The average riskless rental rate for the 24-year period, as calculated in a previous study, figures out at 4.29 per cent and it is approximately from this point, in our opinion, that the relative success or failure of each policy should be measured for this period. Inasmuch as part of the invested assets of each company had to be maintained in bank deposits on which the return is always substantially less than the current rental value of capital, perhaps our standard is a little high. The average size of these bank deposits, however, does not appear sufficiently great to warrant any important modification of our base for the measurement of investment accomplishment. Those companies maintaining an unusually large amount on deposit have not followed the most efficient policy from an investment viewpoint and it is proper that this less efficient investment policy should be reflected in our measurement of results.

Generally speaking, the companies carrying the largest percentages in stocks, particularly common stocks, throughout the period have shown the best results.

Mortgages and collateral loans also appear to have contributed a favorable average return for the period, but it should be borne in mind that such holdings with uncertain marketability are not adapted to the main purpose and objectives of a fire insurance company's assets—at least from an underwriting viewpoint. Also, the administrative expenses connected with mortgage loans have been greater than similar expenses for other assets. Mortgages and collateral loans were more profitable than long-term bonds during the period 1901 to 1920, not only because of the generally higher income afforded but also because the principal value of these short-term loans remained approximately stable while a drastic depreciation in long-term bond values was brought about by the gradual increase in interest rates. Since 1920 the reverse has been true and market appreciation on long-term bonds has much more than covered the spread between high-grade bond yields and the more liberal rates obtainable from mortgages and collateral loans.

Other important factors to consider when attempting to correlate the investment policies of specific companies with their actual accomplishments are:

1. Heavy reductions in common stock holdings at unfavorable periods may have resulted in a relatively poor total accomplishment in spite of the fact that average holdings in common stocks for the entire period were fairly high. Con-

trariwise, substantial increases in common stocks at these same periods may have resulted in a relatively successful total accomplishment in spite of the fact that average holdings in common stocks for the entire period may not have been large.

2. During the period 1909 to 1920, while industrial common stocks were enjoying a substantial appreciation in value, railroad common stocks were steadily declining. Those companies maintaining large holdings in rail stocks during this period will, of course, reflect this condition in their accomplishments. Connecticut companies not permitted to invest in industrial stocks have been particularly affected by this somewhat forced concentration in rails—partly offset, however, by investments in profitable bank stocks.
3. One or two companies in the early years realized large profits from unusual real estate operations.
4. The average return from bonds may have been considerably improved in the cases of specific companies by:
  - (a) Concentration in short maturities prior to 1922.
  - (b) Shifting from short to long maturities and vice versa at favorable periods—or, in other words, successful speculation on the trend of interest rates.
  - (c) Heavy commitments in speculative bonds. After due allowance for all defaults in interest and principal payments a well diversified group of speculative bonds appears to have shown better average results over the entire period than a similar group of very high grade issues.

Immediately following the charts of the 25 individual companies will be found an analysis of the average proportions carried and the average accomplishments of the 25 companies. Here the proportions in the various types of assets do not vary greatly from year to year and for the entire period they average approximately as follows:

Real Estate	4 %
Mortgages and Collateral Loans	10 %
Bank Deposits	8 %
Bonds	49 %
Preferred Stocks	7.5%
Common Stocks	21.5%

Large holdings in the stocks of subsidiary insurance companies omitted in this analysis would materially increase the average percentage carried in common stocks.

Annual return on these investments of the 25 companies, including both income and appreciation, has averaged 4.70 per cent for the period, or .41 per cent more than the average riskless rental value of capital.

For a more detailed analysis of the investment experience of these companies, it will be helpful to study the tables on pages 351 to 355. Actual changes in market value of these investments have been somewhat more varied at times than are indicated in these experience tables based upon the New York Insurance Department's annual appraisal values. This leveling of market variations does not, however, affect the aggregate results shown for the entire period. It is interesting to note from these tables that whereas the invested assets of the average company have, with all dividend, interest and net rental accretions, increased in value almost 200 per cent since 1903, the original principal, omitting this compounding effect of income, has appreciated only 6.40 per cent. If all income accretions are included, but we deduct the current riskless rental value of capital each year before compounding, the 1903 invested assets would have shown a growth in principal value of only 8.27 per cent. In neither of the latter two cases was the original 1903 principal completely restored until 1925.



## CONTINENTAL INSURANCE COMPANY

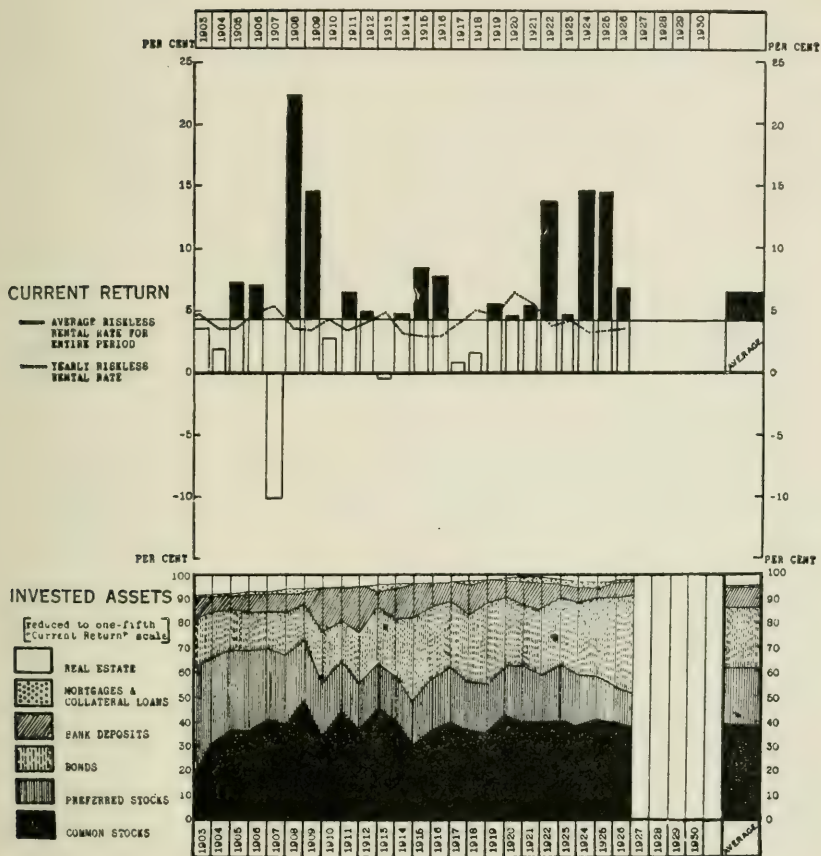


CHART XXXII (1)

## NORTH RIVER INSURANCE COMPANY

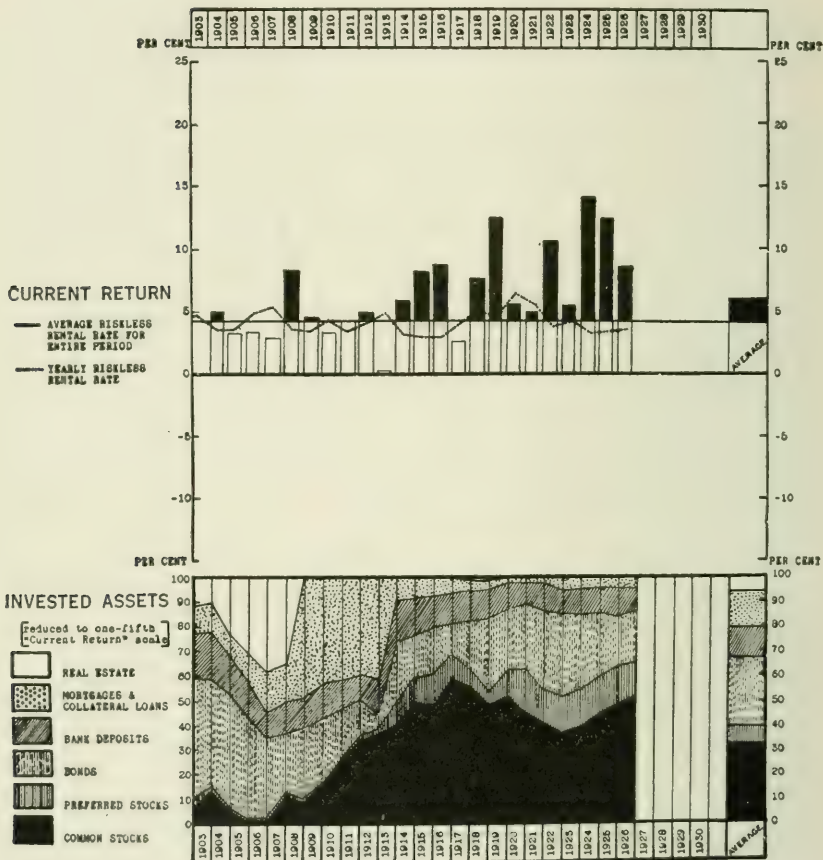


CHART XXXII (2)

## FIDELITY PHENIX FIRE INSURANCE COMPANY

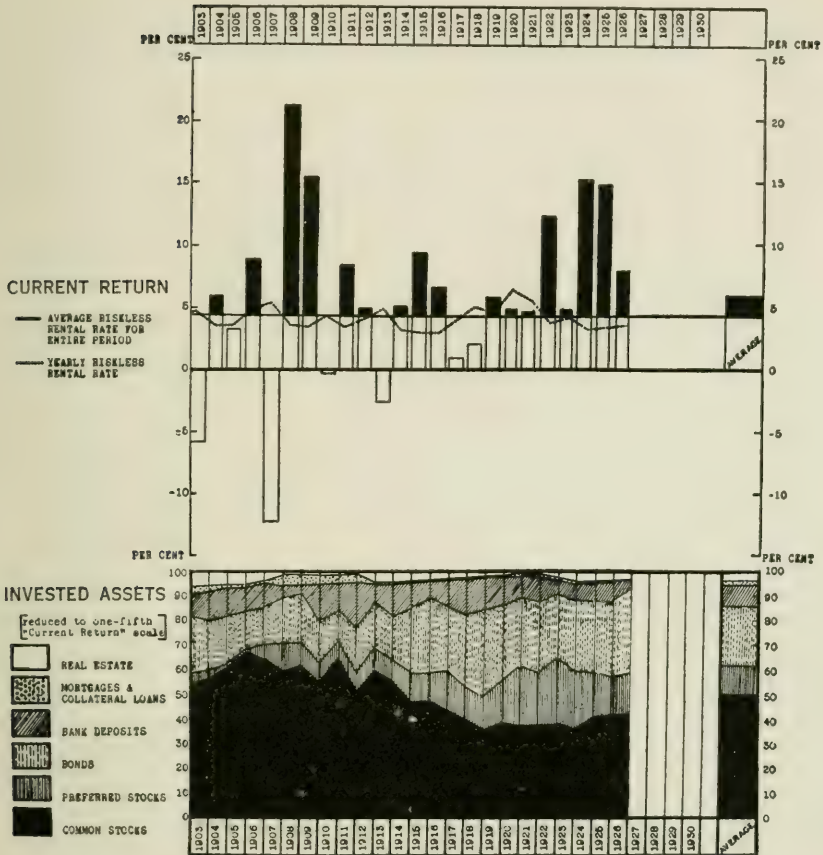


CHART XXXII (3)

UNITED STATES FIRE INSURANCE COMPANY

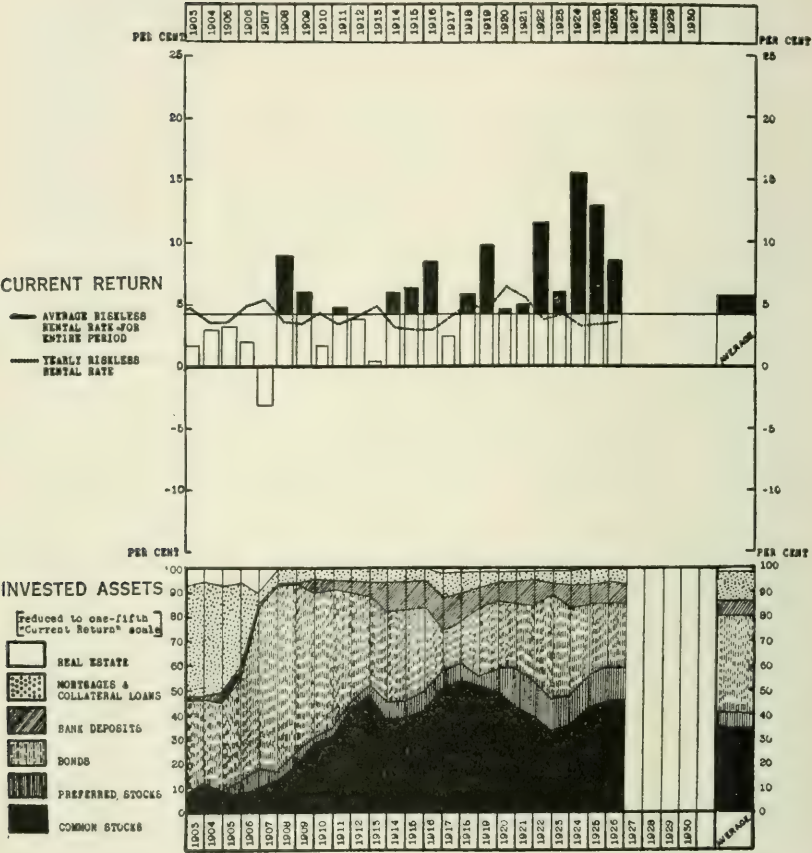


CHART XXXII (4)

GLOBE & RUTGERS FIRE INSURANCE COMPANY

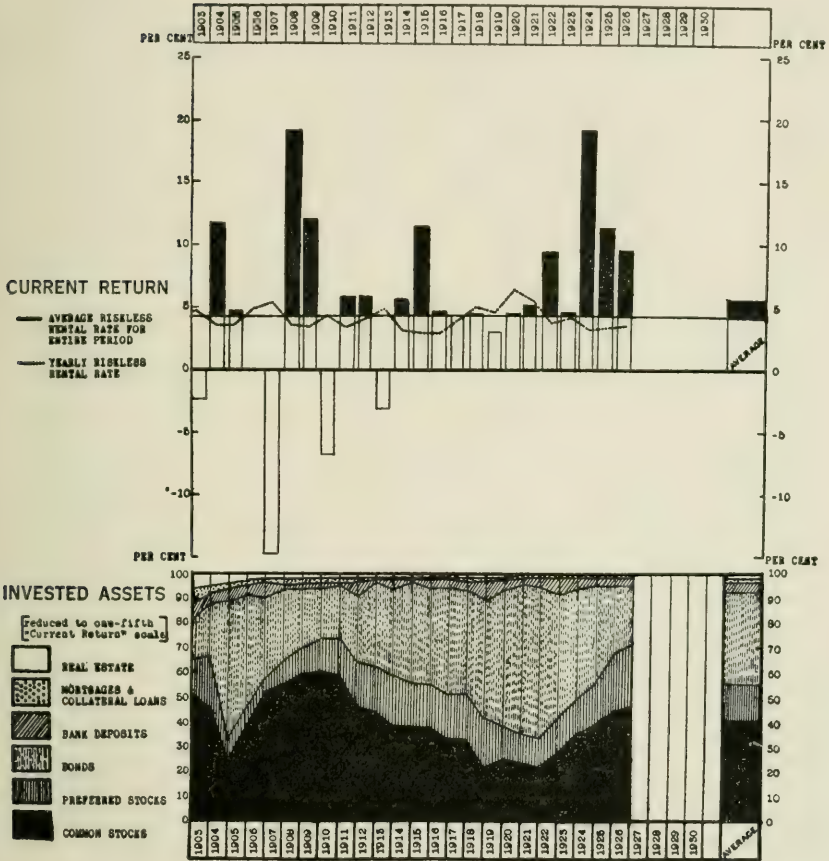


CHART XXXII (5)



## FIREMEN'S INSURANCE COMPANY OF NEW JERSEY

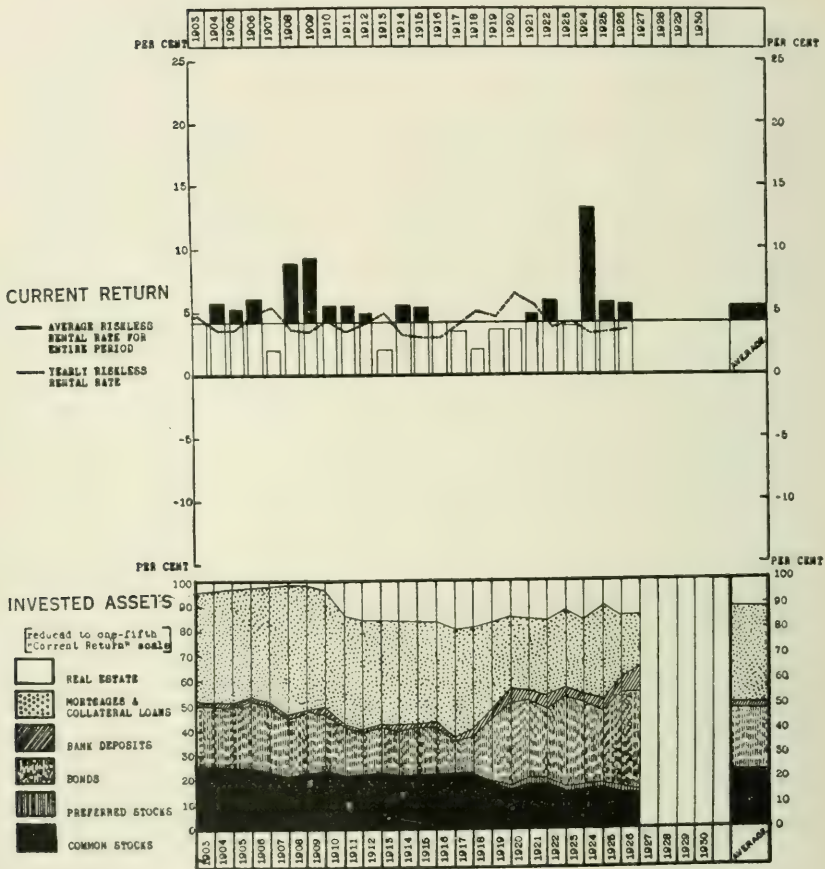


CHART XXXII (6)

## NATIONAL LIBERTY INSURANCE COMPANY

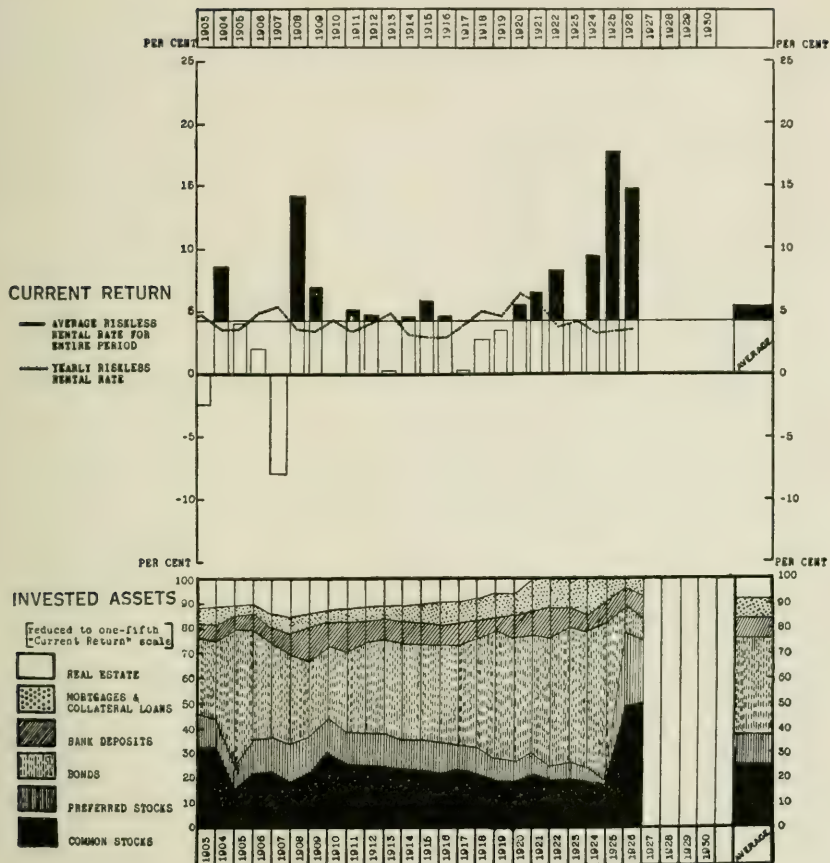


CHART XXXII (7)

## NIAGARA FIRE INSURANCE COMPANY

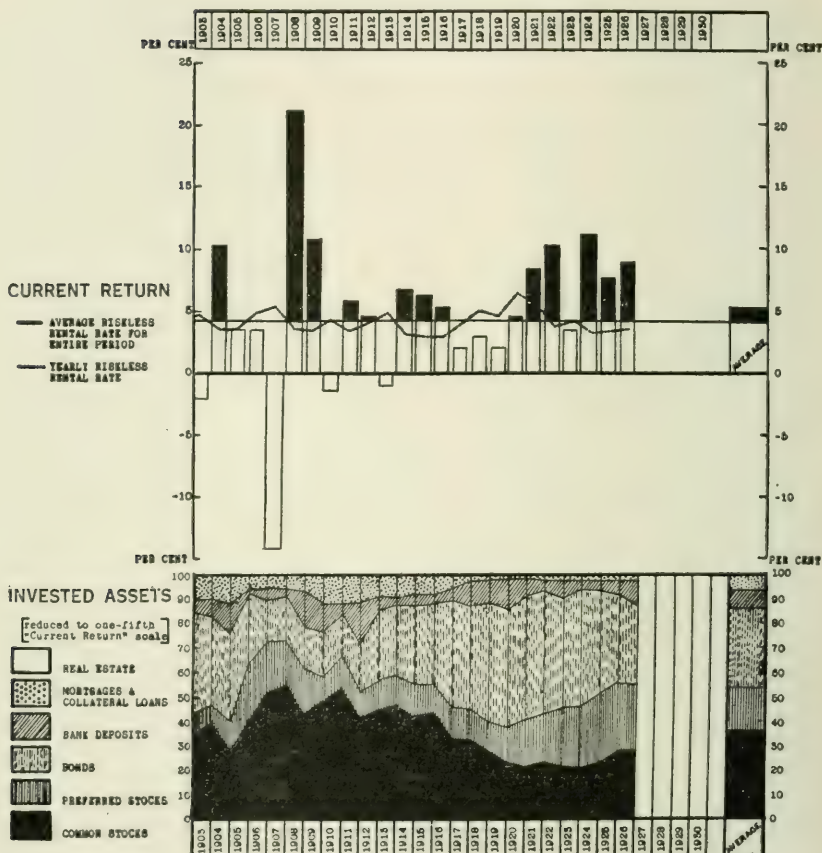


CHART XXXII (8)

PHOENIX INSURANCE COMPANY

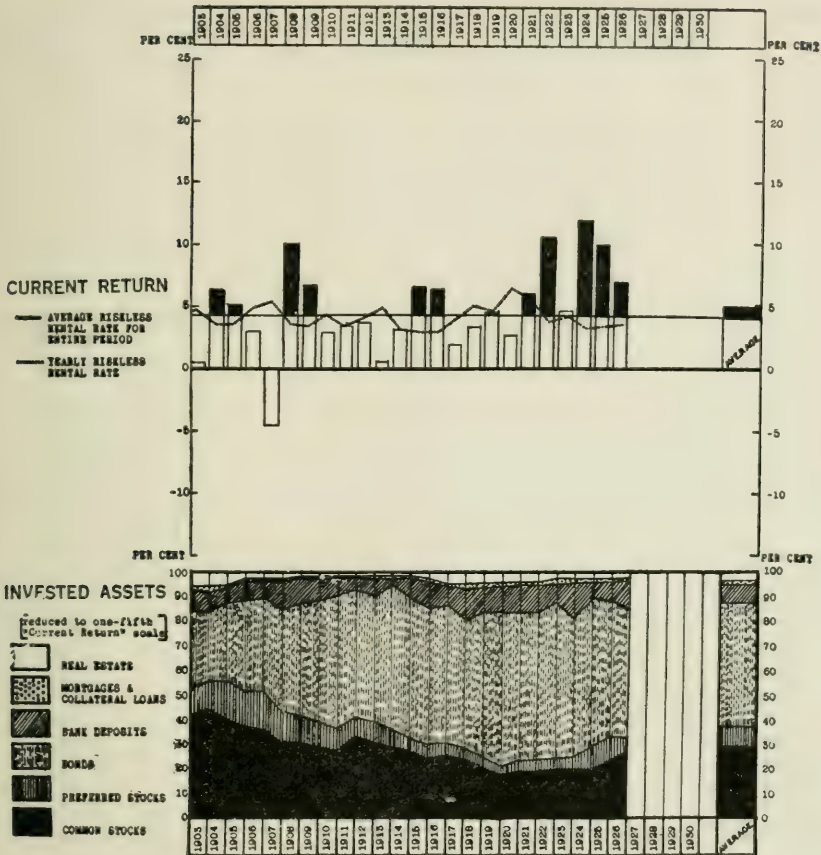


CHART XXXII (9)

## GLENS FALLS INSURANCE COMPANY

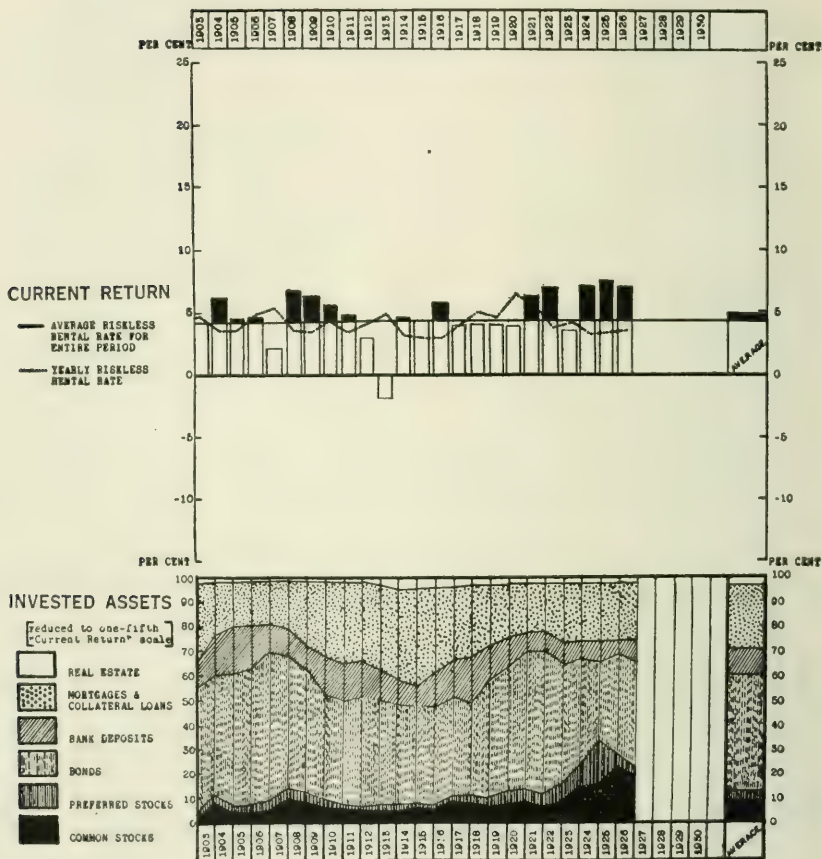


CHART XXXII (10)



GREAT AMERICAN INSURANCE COMPANY

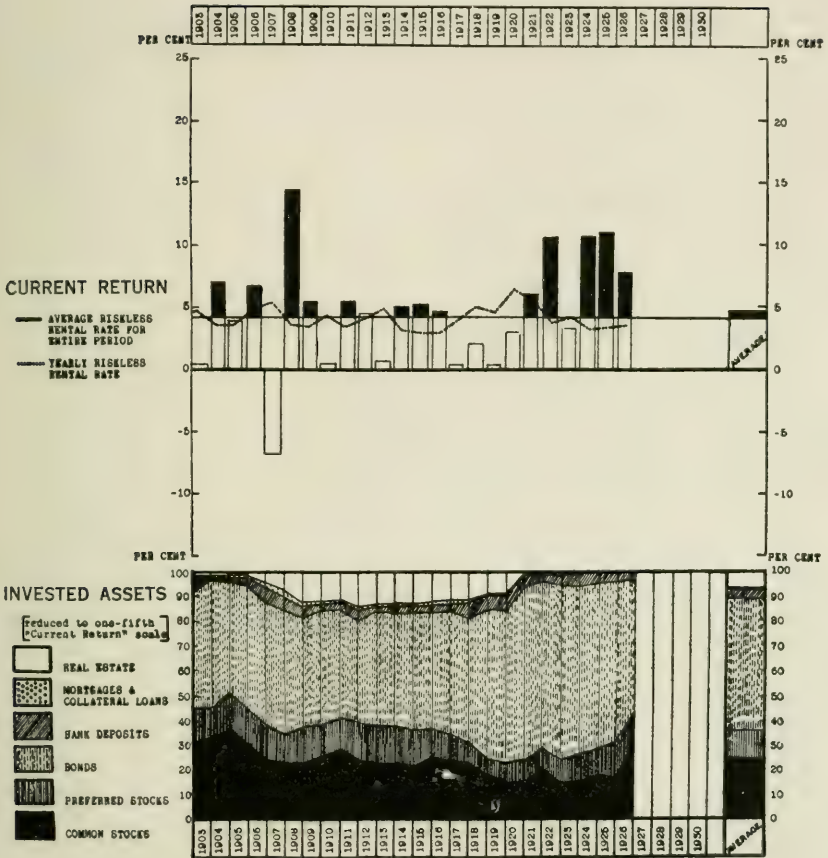


CHART XXXII (11)

## AMERICAN INSURANCE COMPANY

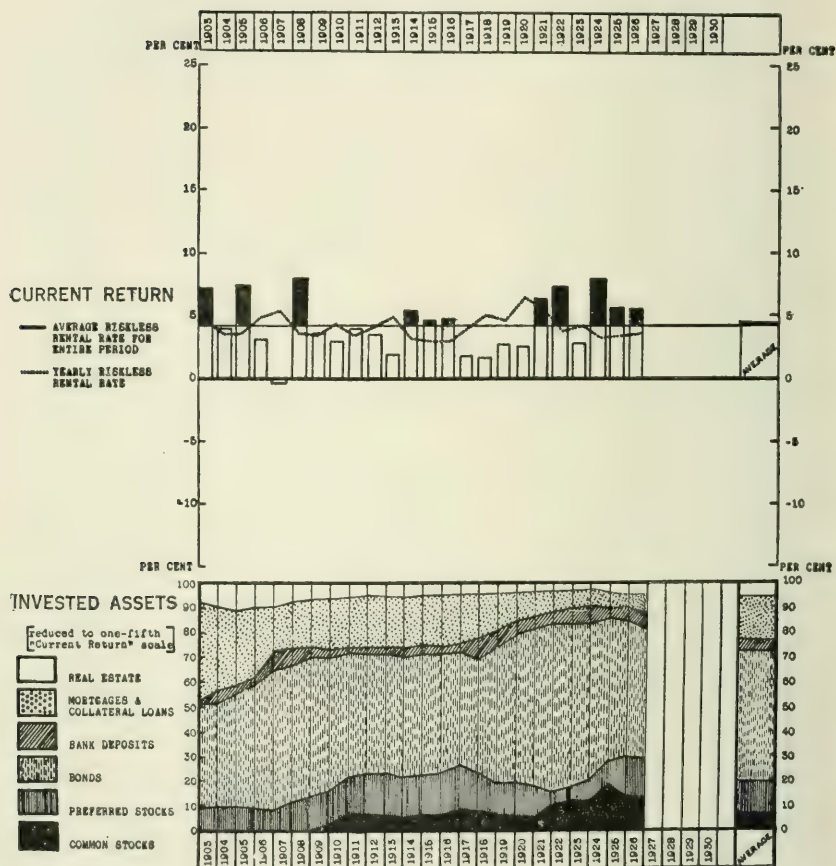


CHART XXXII (12)

## FIRE ASSOCIATION OF PHILADELPHIA

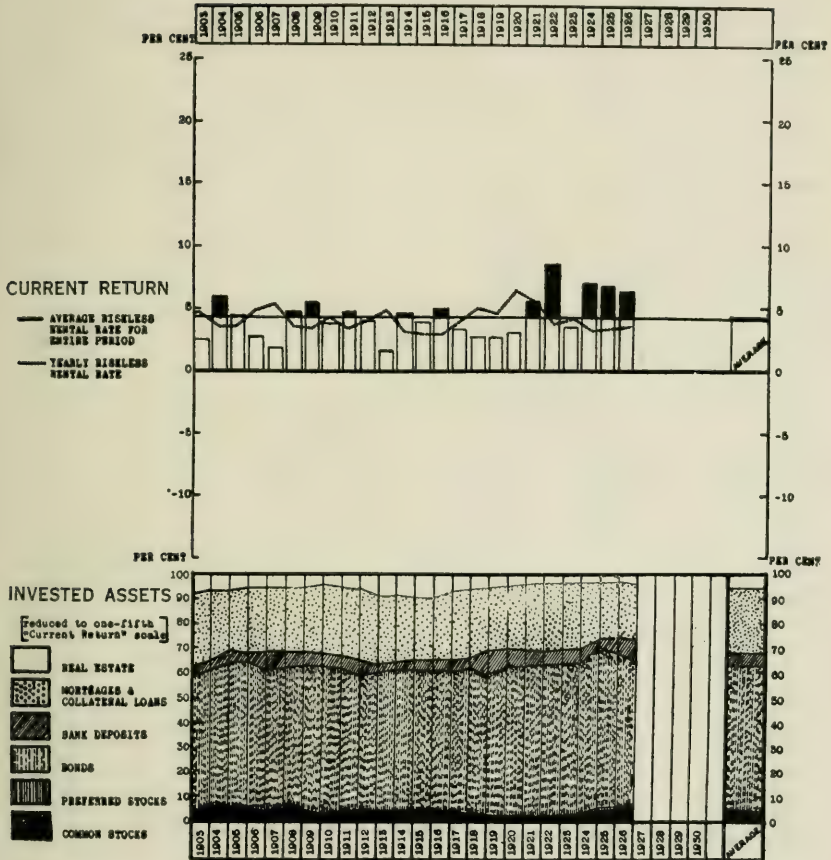


CHART XXXII (13)

## SPRINGFIELD FIRE AND MARINE INSURANCE COMPANY

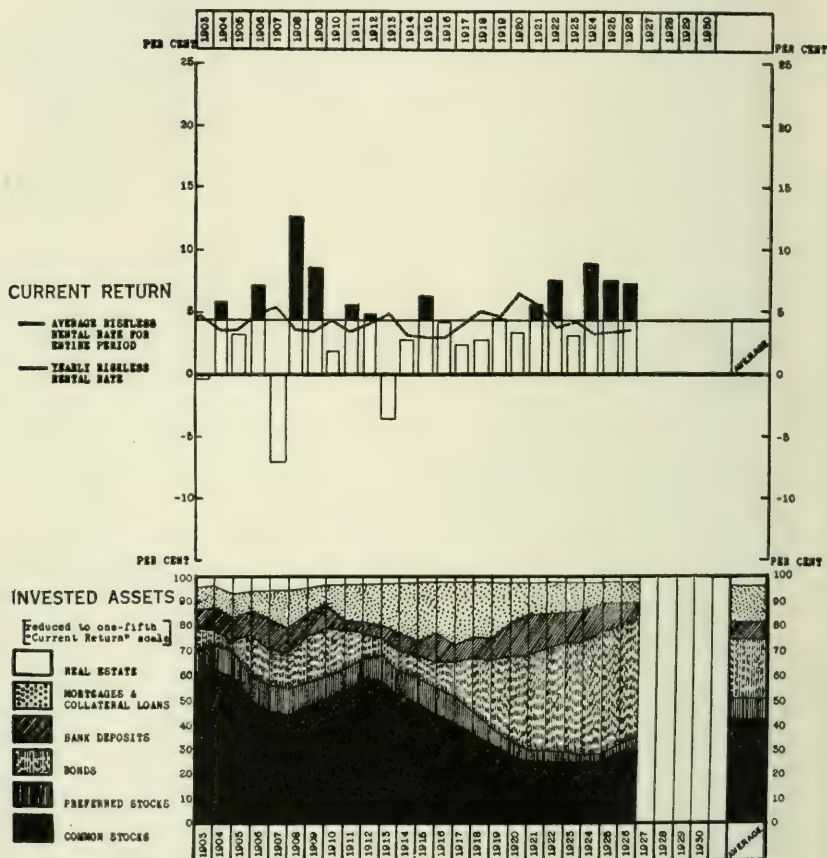


CHART XXXII (14)

## HOME INSURANCE COMPANY

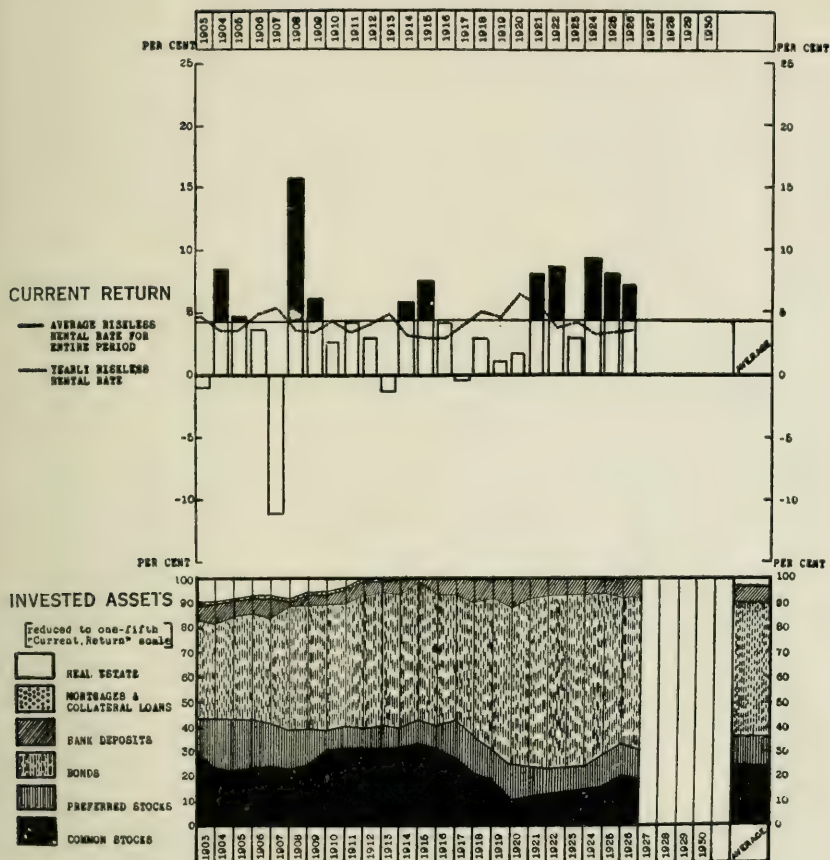


CHART XXXII (15)



## INSURANCE COMPANY OF NORTH AMERICA

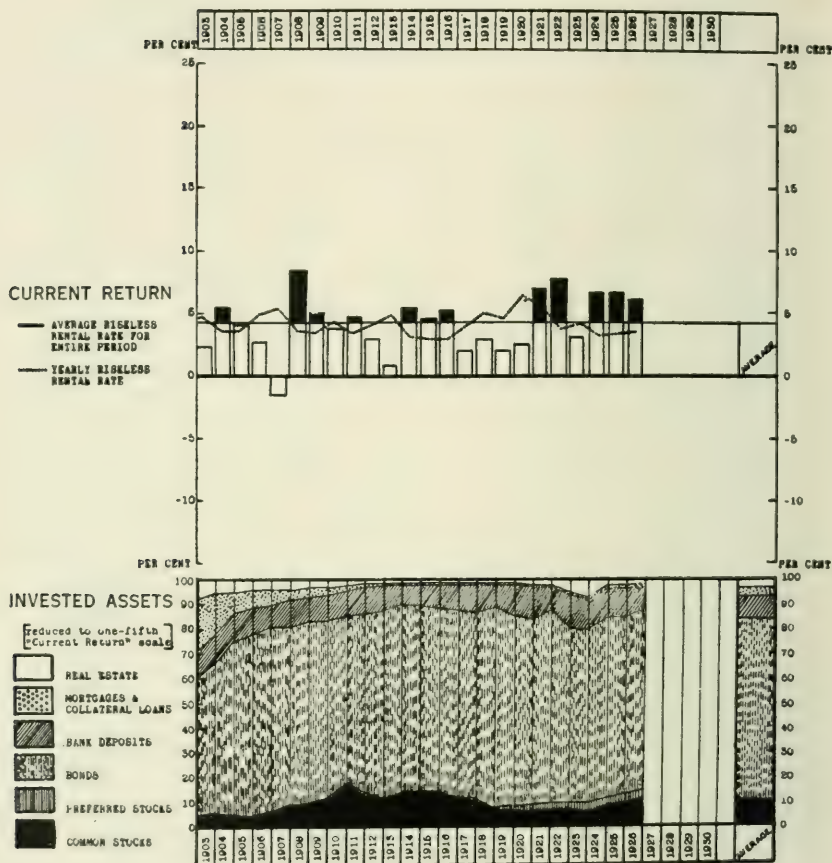


CHART XXXII (16)

## BOSTON INSURANCE COMPANY

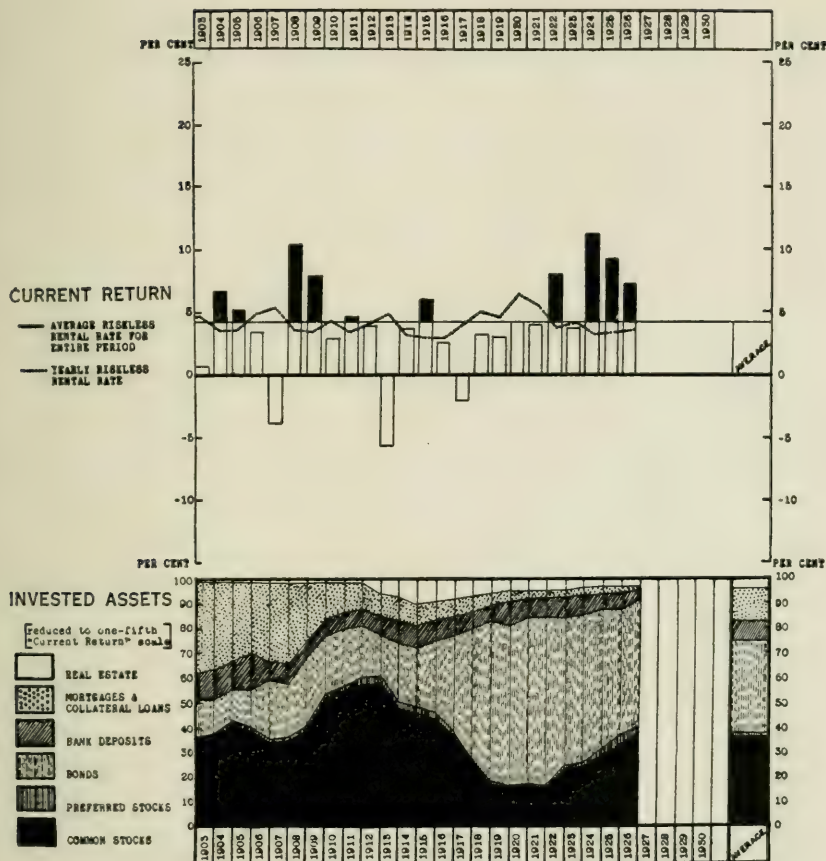


CHART XXXII (17)

FIREMEN'S FUND INSURANCE COMPANY

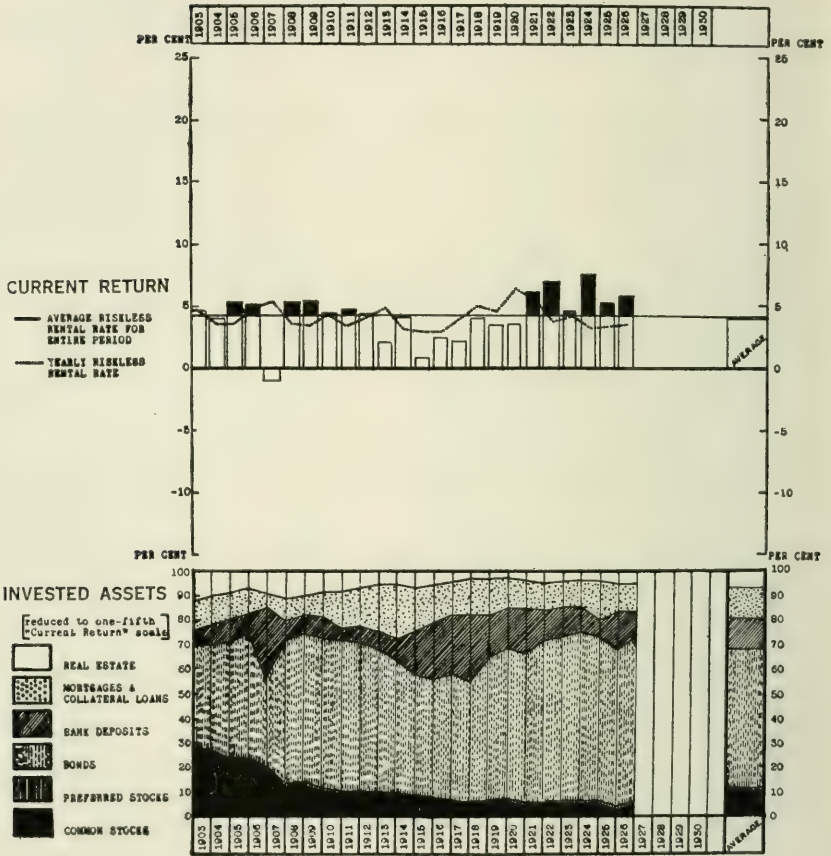


CHART XXXII (18)

## ST. PAUL FIRE AND MARINE INSURANCE COMPANY

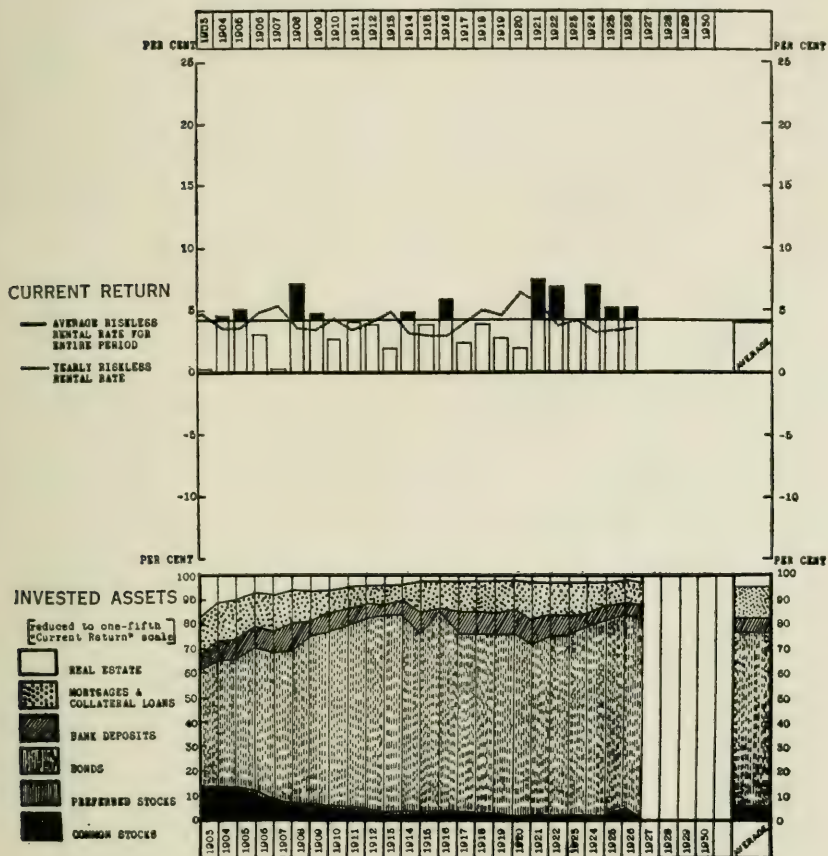


CHART XXXII (19)

## CONNECTICUT FIRE INSURANCE COMPANY

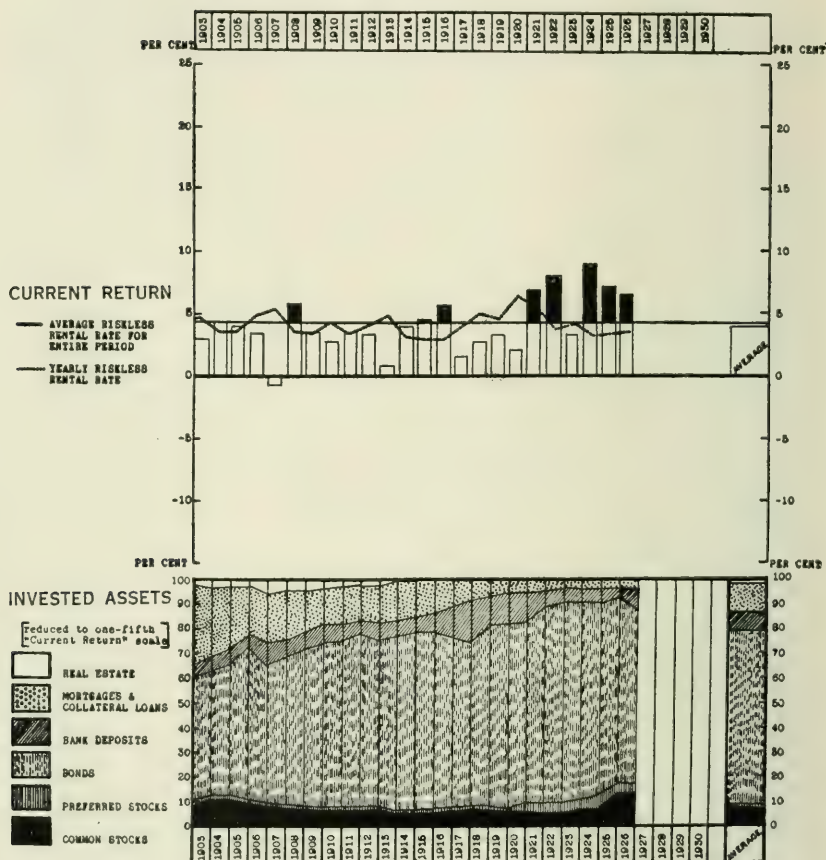


CHART XXXII (20)



## QUEEN INSURANCE COMPANY

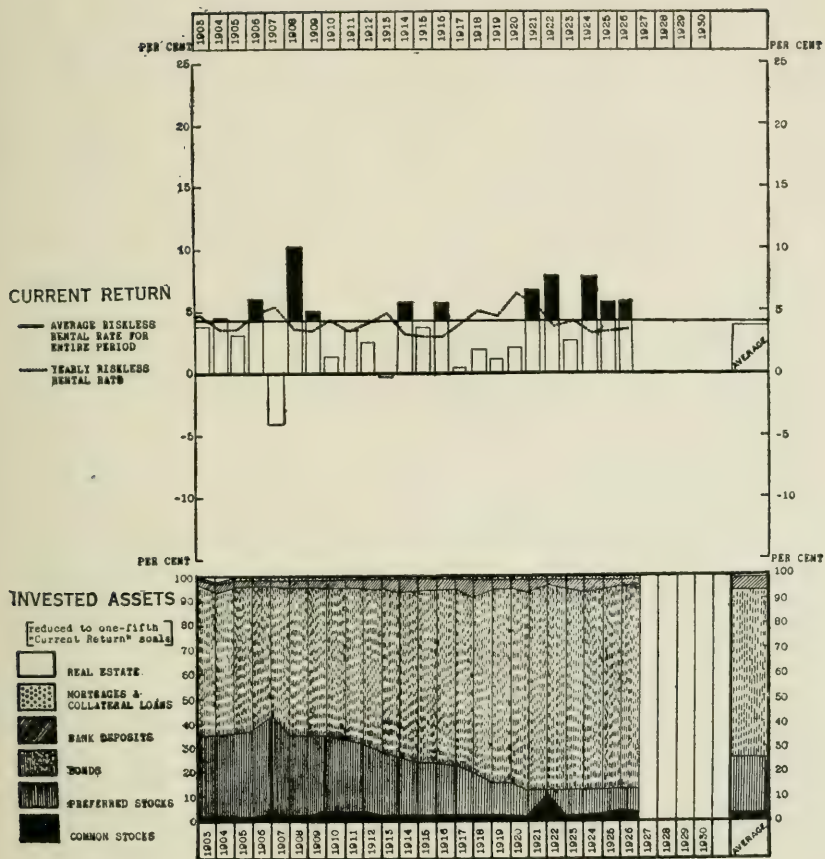


CHART XXXII (21)

## AETNA INSURANCE COMPANY

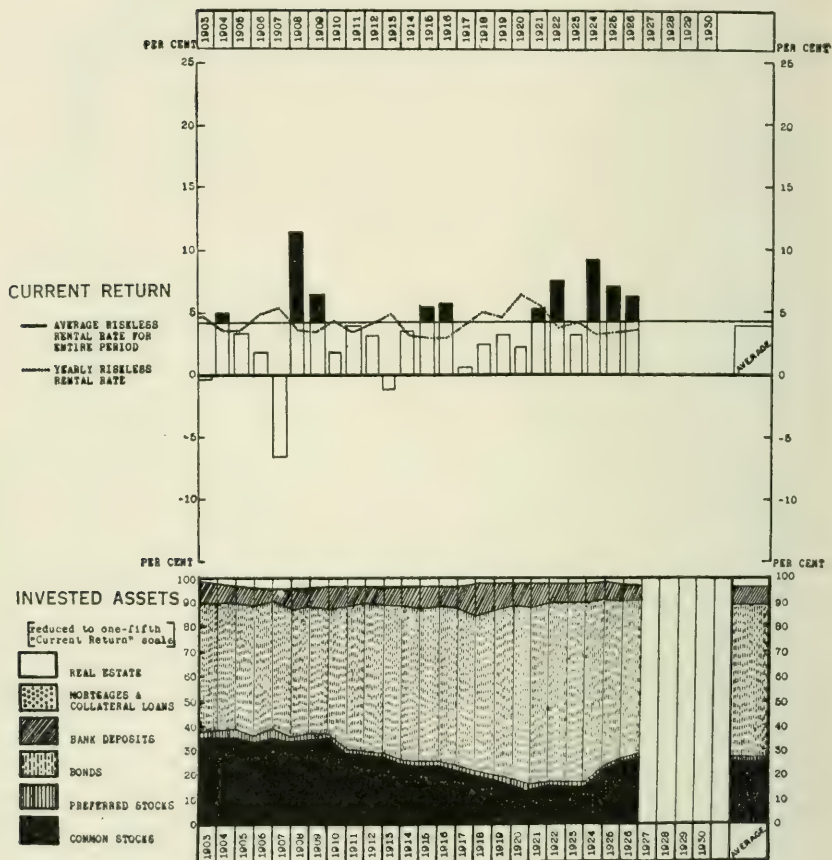


CHART XXXII (22)

## AUTOMOBILE INSURANCE COMPANY

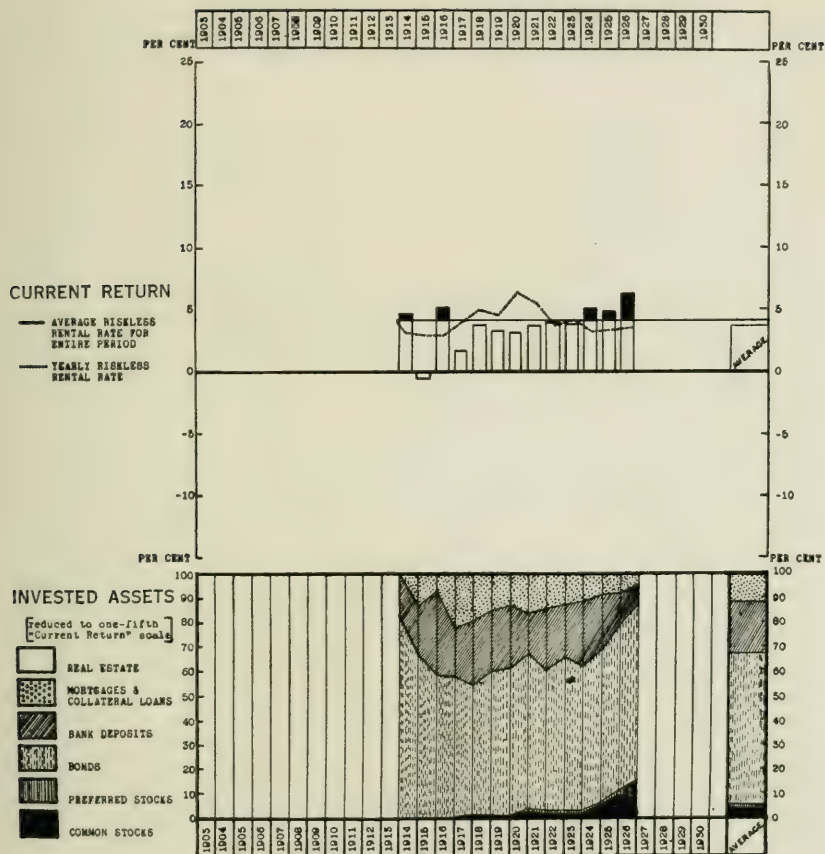


CHART XXXII (23)

## NATIONAL FIRE INSURANCE COMPANY

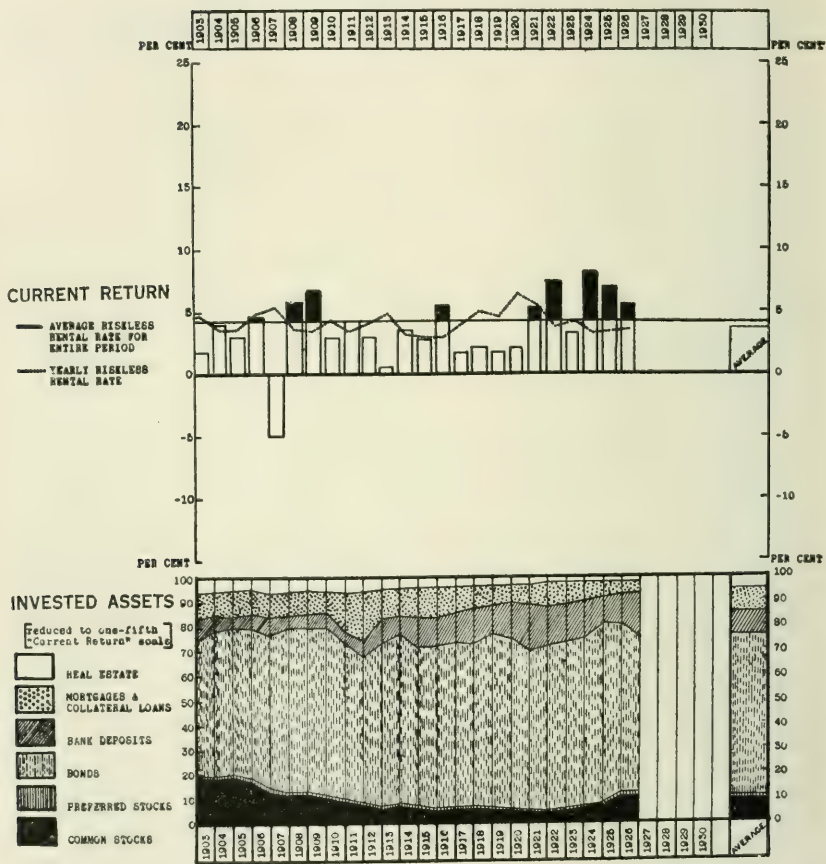


CHART XXXII (24)

## HARTFORD FIRE INSURANCE COMPANY

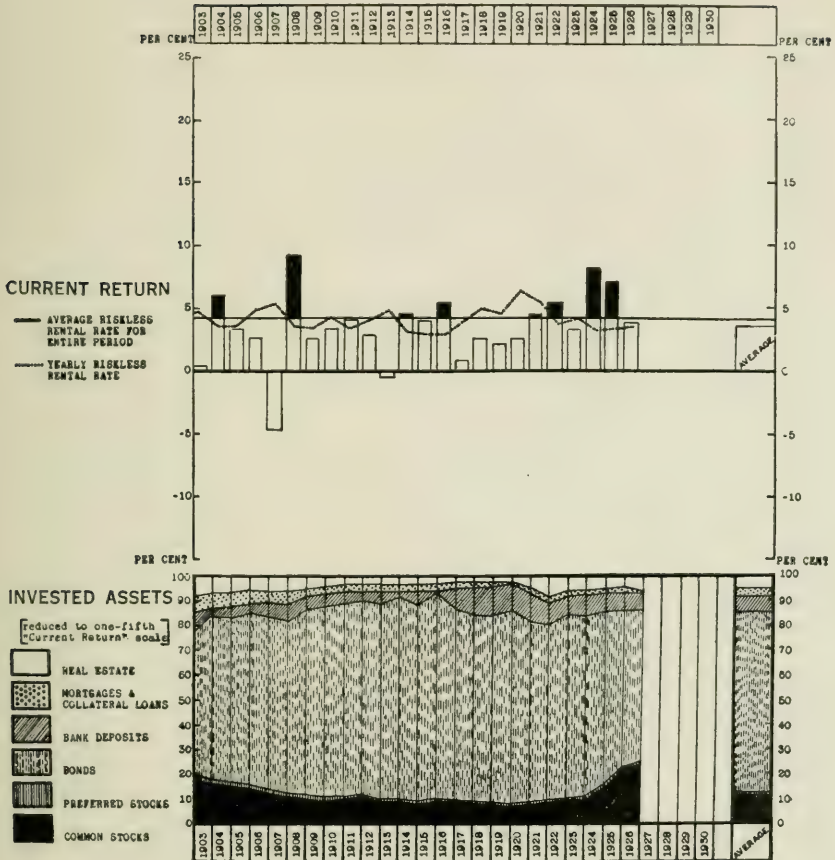


CHART XXXII (25)



## AVERAGE OF 25 FIRE INSURANCE COMPANIES

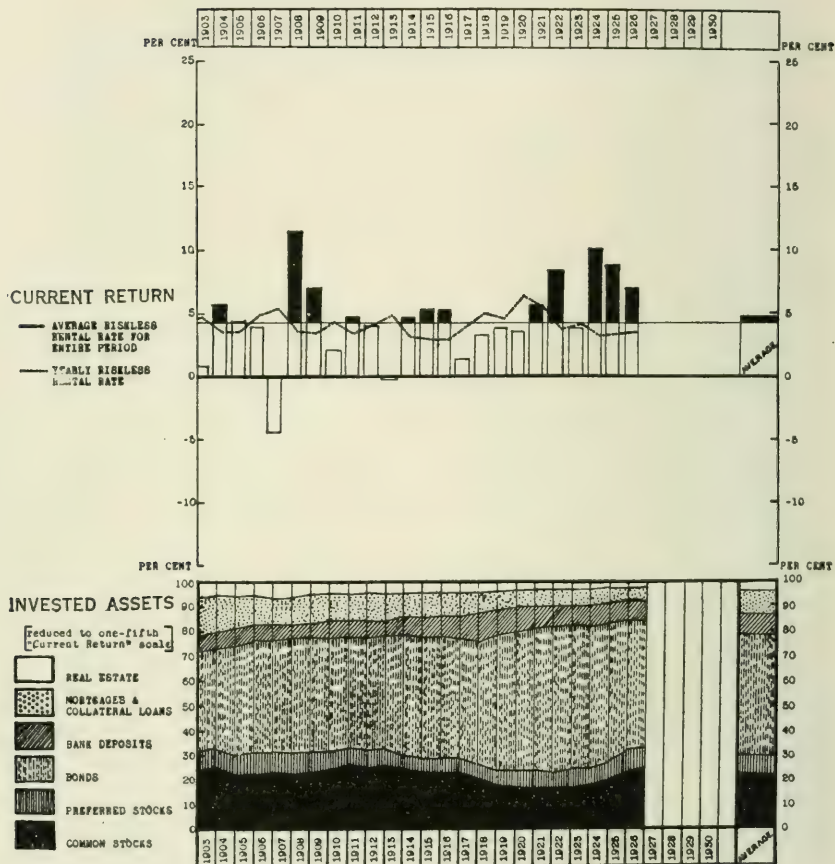


CHART XXXII (26)

PROPORTIONS CARRIED BY THE 25 LARGEST U. S. FIRE INSURANCE COMPANIES  
IN THE SIX GENERAL TYPES OF INVESTED ASSETS EACH DECEMBER 31  
1902 - 1927

	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927
<b>Actna</b>																										
Real Estate	3.02	3.09	2.84	3.06	3.29	3.43	3.38	3.55	3.40	3.29	3.12	3.01	2.94	2.85	2.78	2.71	2.65	2.58	2.51	2.44	2.37	2.30	2.23	2.16	2.10	2.03
Mfg. & C. L.	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Bank Dep.	9.0	8.2	6.7	8.1	6.5	5.1	5.9	8.0	7.5	7.9	8.5	8.0	9.6	10.2	10.7	11.2	10.6	8.3	8.5	10.6	7.0	6.1	6.0	5.9	5.8	5.7
Bonds	31.5	32.3	33.0	32.3	31.5	30.7	29.7	28.9	28.0	27.1	26.2	25.3	24.4	23.5	22.6	21.7	20.8	19.9	19.0	18.1	17.2	16.3	15.4	14.5	13.6	12.7
Gov. Stocks	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Com. Stocks	34.8	35.0	35.0	35.2	35.4	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3	35.3
<b>American</b>																										
Real Estate	6.0	9.7	10.6	9.8	9.8	7.4	6.7	6.1	5.7	5.6	5.3	4.9	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Mfg. & C. L.	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Bank Dep.	47.0	44.1	45.5	48.5	57.0	56.5	53.1	50.0	47.2	47.8	48.1	47.9	46.3	45.2	44.5	43.8	43.0	42.2	41.4	40.6	39.8	39.0	38.2	37.4	36.6	35.8
Bonds	9.4	9.8	9.8	9.1	7.8	10.7	13.8	14.5	15.5	17.3	17.3	16.8	16.3	15.8	15.3	14.8	14.3	13.8	13.3	12.8	12.3	11.8	11.3	10.8	10.3	9.8
Gov. Stocks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Com. Stocks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>American</b>																										
Real Estate	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Mfg. & C. L.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Bank Dep.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Bonds	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Gov. Stocks	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Com. Stocks	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
<b>Automobile</b>																										
Real Estate	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Mfg. & C. L.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Bank Dep.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Bonds	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Gov. Stocks	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Com. Stocks	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
<b>Boston</b>																										
Real Estate	4.5	5.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Mfg. & C. L.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Bank Dep.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Bonds	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Gov. Stocks	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Com. Stocks	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
<b>Connecticut</b>																										
Real Estate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Mfg. & C. L.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Bank Dep.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Bonds	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Gov. Stocks	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Com. Stocks	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
<b>Continental</b>																										
Real Estate	9.2	8.4	8.2	7.5	6.5	6.6	5.2	5.0	4.7	4.4	4.5	4.3	4.0	3.1	3.0	2.0	1.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Mfg. & C. L.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Bank Dep.	7.6	6.1	5.6	7.3	7.0	7.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Bonds	20.2	21.0	21.0	20.6	19.7	19.7	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6
Gov. Stocks	19.2	21.0	21.0	20.6	19.7	19.7	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6
Com. Stocks	19.2	21.0	21.0	20.6	19.7	19.7	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6
<b>Fid. Phenix</b>																										
Real Estate	6.7	6.3	5.8	5.2	3.7	6.1	1.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Mfg. & C. L.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Bank Dep.	7.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Bonds	23.1	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Gov. Stocks	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Com. Stocks	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8
<b>Fire Assoc.</b>																										
Real Estate	8.1	7.6	7.3	6.5	6.4	5.2	5.0	4.0	5.5	6.3</																

PROPORTIONS CARRIED BY THE 25 LARGEST U.S. FIRE INSURANCE COMPANIES IN THE SIX GENERAL TYPES OF INVESTED ASSETS EACH DECEMBER 31, 1902-1927 (concluded)

[illegible]



	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2
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TABLE IX (Concluded)





TABLE X

Company	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925	2926	2927	2928	2929	2930	2931	2932	2933	2934	29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## APPENDIX V

COMPARISON OF ACCOMPLISHMENTS FROM BONDS AND  
STOCKS BY THE TWENTY-FIVE LARGEST UNITED  
STATES FIRE INSURANCE COMPANIES



## COMPARATIVE INVESTMENT EXPERIENCE OF THE TWENTY-FIVE LARGEST FIRE INSURANCE COM- PANIES IN BONDS AND STOCKS

IN THIS study we are making a comparative analysis of the investment experience from bonds and stocks of the 25 largest fire insurance companies from 1908 to 1927. Our analysis goes back only to 1908 because of the difficulty involved in interpreting the less complete annual reports prepared for the insurance commissioners of the various states previous to that time. The comparative Investment Experience Table of Bonds and Stocks held by the 25 Largest Fire Insurance Companies from 1908-1927 is produced on pages 366 to 368. The figures shown in this table for "income," "appreciation," and "total gain" in each year, are the percentages that the actual figures bear to the average market value maintained in bonds or stocks during each year. The figures representing this investment accomplishment were calculated by the general methods which we have outlined in Chapter IV and Appendixes III and IV. The investment accomplishment of the 25 companies illustrated on Chart XXXIII, pages 362 to 365, reflects the smoothing out of actual market fluctuations as a result of Department valuations of securities explained in Appendix III, pages 305 and 306, and we have therefore in this chart similarly smoothed out our base riskless rental rate by taking the average for the entire period (4.23 per cent) rather than the rates applicable to the specific years as illustrated in Chart I of Chapter III. In any record of experience where actual market values are available for the entire period, however, the specific rates applicable to each year should be used as the base above which to measure net investment gain for that year.

January, 1908, was almost the low point of the 1907 bear market and we would not have been justified in starting our experience table at this unusually favorable time for investment were it not for the fact that the Department valuations used actually were about midway between the high and low points of the cycle. Thus although our study begins at a time of unusually depressed prices, the Department valuations upon which the investment experience of these insurance companies is based are reasonably high.

In all cases where stocks of subsidiary insurance companies were



carried to the extent of 25 per cent or more of total stocks held they have been omitted from this analysis for the reasons explained in Appendix III and Appendix IV.

In Chart XXXIII, on the following pages are presented graphically the comparative investment accomplishments from bonds and from stocks by each of the 25 largest fire insurance companies in the United States as derived from the investment experience tables of these companies shown on pages 362 to 365. The length of each bar indicates the percentage of total return during the year to the average amount carried in bonds or stocks.

The line across each chart at 4.23 per cent represents the average riskless rental rate for the period 1908 to 1927. If we accept as a proper measure of net gain from investment management the amount realized over and above the simple rental value of the capital employed, the shaded portions are actual business profits contributed by the investment departments of the various insurance companies. Likewise, those years in which total accomplishment falls short of the riskless rental rate are years of business losses from investment operations and for which the investment departments are just as responsible. A comparison of average results over a number of years is of course the best measure of the relative business profits contributed by bonds and preferred and common stocks. These results also reveal the relative investment skill exhibited by the managements of the various companies. It is at once apparent from the average results shown by these companies that in every case the net return from stocks over the whole 18-year period has been substantially greater than that realized from bonds.



# COMPARISON OF INVESTMENT RESULTS FROM BONDS AND STOCKS OF TWENTY-FIVE LARGEST FIRE INSURANCE COMPANIES IN THE UNITED STATES: YEARLY - 1908 - 1927

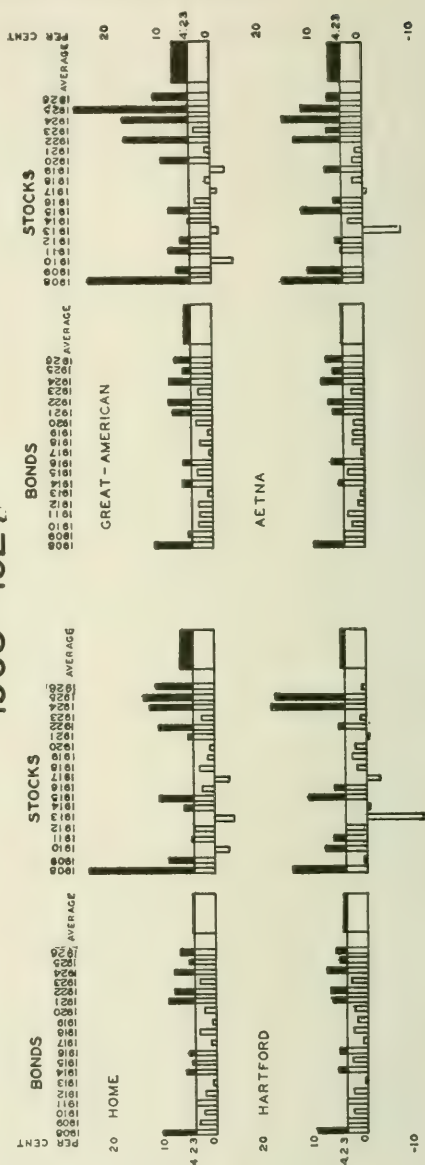
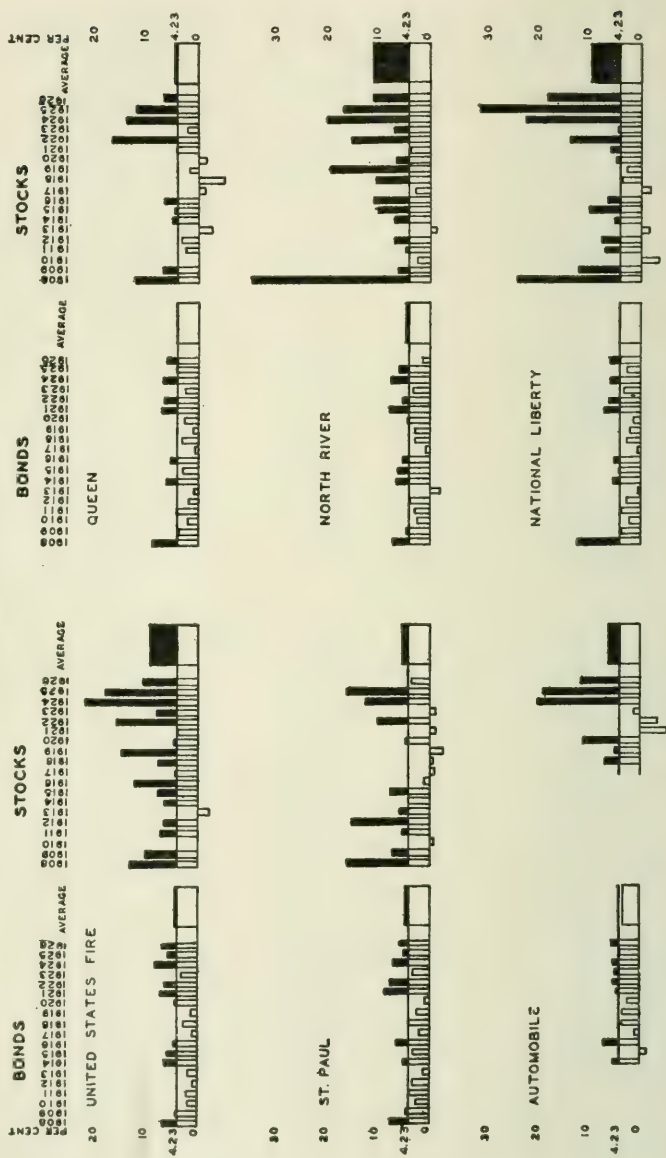




CHART XXXIII

COMPARISON OF INVESTMENT RESULTS FROM BONDS AND STOCKS OF TWENTY-FIVE  
LARGEST FIRE INSURANCE COMPANIES IN THE UNITED STATES: YEARLY—  
1908-1927 (concluded)





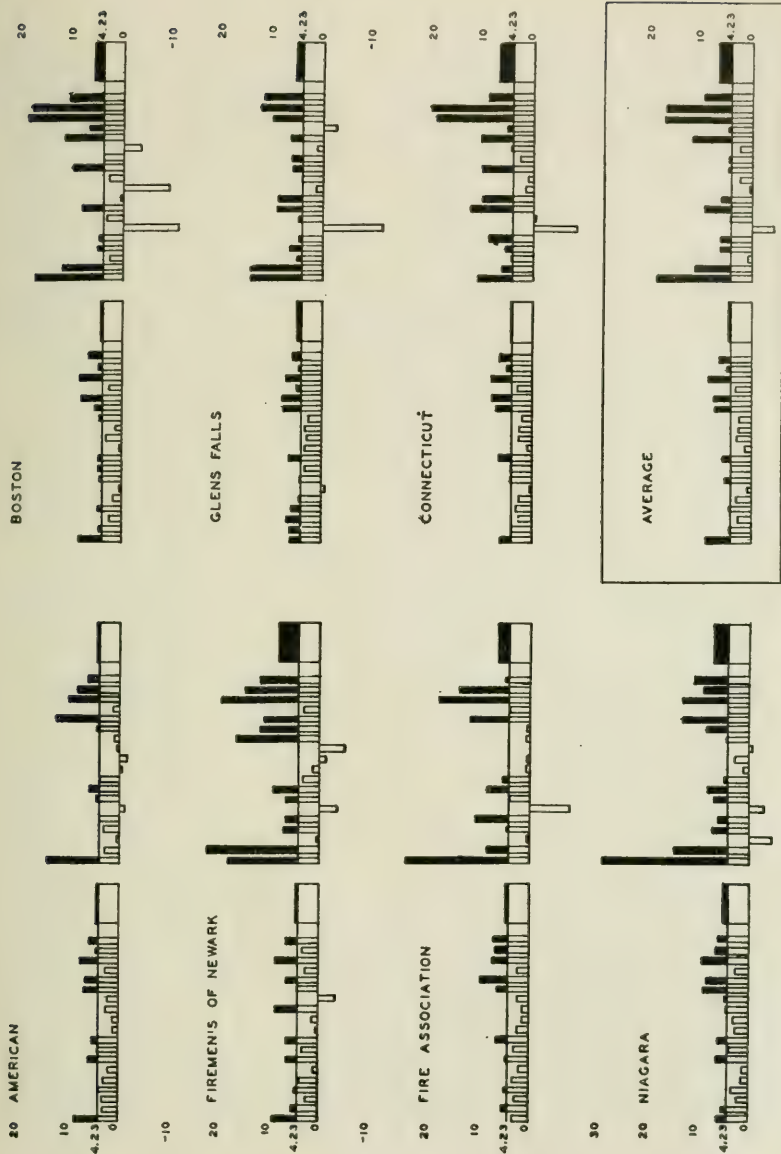


CHART XXXIII (Concluded)

INVESTMENT EXPERIENCE TABLE OF BONDS AND STOCKS HELD BY THE  
25 LARGEST U. S. FIRE INSURANCE COMPANIES, 1908 TO 1927

Company		1932				1929				1920				1931				1932				1933				1934				
		Tot.	Yr.	Avg.	Inc.	Tot.	Yr.	Avg.	Inc.	Tot.	Yr.	Avg.	Inc.	Tot.	Yr.	Avg.	Inc.	Tot.	Yr.	Avg.	Inc.	Tot.	Yr.	Avg.	Inc.	Tot.	Yr.	Avg.	Inc.	
B	4.8	5.5	10.3	4.6	-6	4.0	4.0	1.8	2.8	4.5	-6	3.9	4.6	-2.7	1.9	4.8	3.1	4.0	4.7	5.3	4.8	3.1	4.0	4.7	5.3	4.8	3.1	4.0	4.7	
B	4.4	12.3	16.7	4.6	6.7	11.3	4.3	-4.2	1	4.6	-1	4.7	4.4	1.2	4.8	4.8	-12.3	-7.5	4.8	-12.3	-7.5	4.8	-12.3	-7.5	4.8	-12.3	-7.5	4.8	-12.3	
B	3.9	10.5	14.1	3.1	5.1	3.1	3.1	-4.0	3	4.5	-3.0	4.5	4.6	-7	4.1	4.6	-2.3	-1.4	4.9	-3.3	-1.4	4.9	-3.3	-1.4	4.9	-3.3	-1.4	4.9	-3.3	
B	4.8	4.1	3.5	4.7	1.2	5.9	4.8	-1.6	3.2	4.8	4	5.2	4.8	-1.2	3.6	4.9	-2.8	2.1	4.9	-2.8	2.1	4.9	-2.8	2.1	4.9	-2.8	2.1	4.9	-2.8	
B	3.1	18.6	24.1	4.0	4.6	8.8	4.3	-3.1	3.6	4.8	0	4.9	4.6	3.8	3.4	4.9	-12.9	-8.0	5.4	-1.4	4.0	-1.4	4.0	-1.4	4.0	-1.4	4.0	-1.4	4.0	
B	4.6	3.1	1.1	4.5	1.8	3.3	4.2	-7	4.0	4.1	4.2	4.7	-8	4.0	5.1	3.5	1.6	4.0	-1.6	4.6	-1.6	4.6	-1.6	4.6	-1.6	4.6	-1.6	4.6	-1.6	
B	4.8	5.1	9.9	4.7	3.1	5.6	4.6	-2.0	2.6	4.8	2.3	5.1	-6	4.6	-4.0	4.5	-3.3	1.2	4.8	-1.8	4.6	-1.8	4.6	-1.8	4.6	-1.8	4.6	-1.8	4.6	
B	4.9	13.4	18.3	3.0	15.6	22.6	4.6	1.0	6.4	3.3	7.7	4.4	2.8	3.2	4.6	4.9	-8.7	-3.8	5.1	3.9	7.0	4.9	-8.7	-3.8	5.1	3.9	7.0	4.9	-8.7	
B	5.5	7	6.2	5.2	3.1	6.6	5.5	1.0	7.0	5.4	3.9	2.9	6.8	4.3	5.8	5.0	-17.0	-12.0	5.8	-5.2	5.8	-5.2	5.8	-5.2	5.8	-5.2	5.8	-5.2	5.8	
B	4.5	10.2	14.2	4.6	10.3	14.2	4.1	-1.8	5.4	3.9	2.9	6.8	4.3	5.8	5.0	-17.0	-12.0	5.8	-5.2	5.8	-5.2	5.8	-5.2	5.8	-5.2	5.8	-5.2	5.8	-5.2	
B	4.2	23.1	25.5	4.0	30.7	34.2	4.4	-4.8	-10.4	4.9	3.9	6.8	4.3	5.8	5.0	-17.0	-12.0	5.8	-5.2	5.8	-5.2	5.8	-5.2	5.8	-5.2	5.8	-5.2	5.8	-5.2	
B	4.5	11.1	11.6	4.2	-8	5.0	4.4	-1.2	3.2	3.9	-3.2	2.7	4.5	-1.4	3.1	4.5	-3.3	1.2	4.6	1.6	6.2	4.7	1.6	6.2	4.7	1.6	6.2	4.7	1.6	
B	4.8	19.8	24.6	3.8	3.6	7.4	4.7	-8.9	-4.2	5.1	3.6	8.7	1.2	6.3	5.3	-6.9	-1.5	5.6	-9	4.7	-9	4.7	-9	4.7	-9	4.7	-9	4.7	-9	
B	4.6	5.5	10.1	4.3	-2	4.0	4.6	-1.2	8	4.0	4.2	4.6	-1.2	8	4.0	4.2	4.6	-1.2	8	4.0	4.2	4.6	-1.2	8	4.0	4.2	4.6	-1.2	8	
B	4.1	6.7	10.8	4.0	-2	3.2	4.3	-3.7	2.6	3.8	3.2	4.0	4.2	-1.9	3.4	4.4	-3.6	4.8	4.1	4.4	-3.6	4.8	4.1	4.4	-3.6	4.8	4.1	4.4	-3.6	
B	4.5	20.7	25.2	4.0	5.7	9.7	4.5	-7.3	-2.8	5.0	-3	4.7	4.7	-6	4.1	5.2	-9.3	-3.9	5.4	7	6.1	7	6.1	7	6.1	7	6.1	7	6.1	
B	4.5	3.9	8.4	4.3	-6	4.9	4.4	-9	3.5	4.5	1	4.6	4.3	-6	4.1	5.2	-9.3	-3.9	5.4	7	6.1	7	6.1	7	6.1	7	6.1	7	6.1	
B	5.5	12.6	20.0	4.2	5.6	5.2	4.4	-6	4.6	4.0	5.0	9.7	4.7	2.3	5.0	5.9	-6.6	-1.6	5.4	4.2	4.4	4.2	4.4	4.2	4.4	4.2	4.4	4.2		
B	4.5	8.1	12.8	4.4	5.6	10.0	4.3	-4.2	1	4.6	3.8	6.4	4.5	-6	5.1	4.5	-16.3	-13.8	4.2	-3.8	4.4	-3.8	4.4	-3.8	4.4	-3.8	4.4	-3.8	4.4	
B	4.6	8.7	12.8	4.1	3.1	4.2	4.0	-1.7	2.3	4.1	1	4.0	4.7	-1.3	2.9	4.4	-4.0	-4.4	4.4	1.2	5.6	4.4	1.2	5.6	4.4	1.2	5.6	4.4	1.2	
B	5.4	19.5	24.5	4.5	6.4	13.3	4.9	-6.7	-3.3	6.0	2.6	7.6	5.0	-3.3	6.1	6.1	-8.0	-3.9	5.5	5.2	5.7	5.2	5.7	5.2	5.7	5.2	5.7	5.2	5.7	
B	4.6	24.3	29.8	4.6	15.5	4.8	-3.4	-2	2.7	4.1	2.4	3.8	3.8	-1.6	3.7	4.8	-3.7	-3.5	2.8	4.8	3.5	2.8	4.8	3.5	2.8	4.8	3.5	2.8	4.8	
B	5.4	24.3	29.8	4.6	15.5	4.8	-3.4	-2	2.7	4.1	2.4	3.8	3.8	-1.6	3.7	4.8	-3.7	-3.5	2.8	4.8	3.5	2.8	4.8	3.5	2.8	4.8	3.5	2.8	4.8	
B	3.4	4.1	7.7	4.2	6	4.8	4.5	-1.8	2.7	4.4	-3.2	3.2	5.3	-1.0	4.0	4.6	-6.6	-2.0	5.0	1.8	6.8	1.8	6.8	1.8	6.8	1.8	6.8	1.8	6.8	
B	4.8	3.1	8.0	4.3	-4	4.7	4.4	-1.3	3.3	4.3	-1	4.2	4.3	-7	3.6	4.7	-6.3	-3.4	5.4	3.9	7.3	3.9	7.3	3.9	7.3	3.9	7.3	3.9	7.3	
B	4.7	31.6	16.3	4.6	3.2	7.8	4.9	-5.5	-6	5.0	-9	5.9	5.9	10.0	3.5	9.8	3.2	5.0	-7	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
B	4.6	5.1	9.7	4.2	5.5	4.7	4.2	-5	4.7	4.4	-3	4.7	4.6	-1.8	2.8	4.4	-4.2	-5.4	4.1	4.9	4.2	4.1	4.9	4.2	4.1	4.9	4.2	4.1	4.9	
B	4.6	5.1	9.7	4.2	5.5	4.7	4.2	-5	4.7	4.4	-3	4.7	4.6	-1.8	2.8	4.4	-4.2	-5.4	4.1	4.9	4.2	4.1	4.9	4.2	4.1	4.9	4.2	4.1	4.9	
B	4.0	5.0	9.5	3.9	5.1	10.0	3.9	-3.7	2.2	5.0	-3.4	4.2	4.5	-1.8	3.0	4.5	-3.7	-3.8	3.6	5.2	3.6	5.2	3.6	5.2	3.6	5.2	3.6	5.2	3.6	
B	3.8	6.9	12.7	3.9	3.4	7.3	4.0	-4.0	0	4.2	4.6	2.6	4.4	-6	3.8	4.4	-7.4	-3.0	4.5	5.4	4.5	5.4	4.5	5.4	4.5	5.4	4.5	5.4	4.5	
B	4.8	3.1	8.0	4.3	-4	4.7	4.4	-1.3	3.3	4.3	-1	4.2	4.3	-7	3.6	4.7	-6.3	-3.4	5.4	3.9	7.3	3.9	7.3	3.9	7.3	3.9	7.3	3.9	7.3	
B	4.7	31.6	16.3	4.6	3.2	7.8	4.9	-5.5	-6	5.0	-9	5.9	5.9	10.0	3.5	9.8	3.2	5.0	-7	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
B	4.6	5.1	9.7	4.2	5.5	4.7	4.2	-5	4.7	4.4	-3	4.7	4.6	-1.8	2.8	4.4	-4.2	-5.4	4.1	4.9	4.2	4.1	4.9	4.2	4.1	4.9	4.2	4.1	4.9	
B	4.6	5.1	9.7	4.2	5.5	4.7	4.2	-5	4.7	4.4	-3	4.7	4.6	-1.8	2.8	4.4	-4.2	-5.4	4.1	4.9	4.2	4.1	4.9	4.2	4.1	4.9	4.2	4.1	4.9	
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5	19.1	4.7	6.6	11.0	4.2	-2	3.0	4.2	7.2	4.6	-1	4.1	5.0	4.6	-3.1	4.4	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8	2.6	4.8
B	4.8	32.5																												

Companies	1915			1916			1917			1918			1919			1920			1921		
	Inc.	Asse.	Tot.	Inc.	Asse.	Tot.	Inc.	Asse.	Tot.	Inc.	Asse.	Tot.	Inc.	Asse.	Tot.	Inc.	Asse.	Tot.	Inc.	Asse.	Tot.
Acme	4.6	3.8	8.4	4.6	3.8	8.4	4.6	3.8	8.4	4.6	3.8	8.4	4.6	3.8	8.4	4.6	3.8	8.4	4.6	3.8	8.4
Aetna	4.6	7.8	12.4	4.6	7.8	12.4	4.6	7.8	12.4	4.6	7.8	12.4	4.6	7.8	12.4	4.6	7.8	12.4	4.6	7.8	12.4
American	4.7	4.1	8.8	4.7	4.1	8.8	4.7	4.1	8.8	4.7	4.1	8.8	4.7	4.1	8.8	4.7	4.1	8.8	4.7	4.1	8.8
23,278,110																					
Automobile	1.7	3.3	5.0	1.7	3.3	5.0	1.7	3.3	5.0	1.7	3.3	5.0	1.7	3.3	5.0	1.7	3.3	5.0	1.7	3.3	5.0
23,053,217																					
Boston	4.1	1.0	5.1	4.1	1.0	5.1	4.1	1.0	5.1	4.1	1.0	5.1	4.1	1.0	5.1	4.1	1.0	5.1	4.1	1.0	5.1
15,528,466																					
15,950,122																					
Continental	4.8	4.2	9.0	4.8	4.2	9.0	4.8	4.2	9.0	4.8	4.2	9.0	4.8	4.2	9.0	4.8	4.2	9.0	4.8	4.2	9.0
6,813,435																					
Fidelity-Phenix	4.7	4.4	9.1	4.7	4.4	9.1	4.7	4.4	9.1	4.7	4.4	9.1	4.7	4.4	9.1	4.7	4.4	9.1	4.7	4.4	9.1
21,127,351																					
4,201,918,013																					
Fireman's Fund	4.6	2.8	7.4	4.6	2.8	7.4	4.6	2.8	7.4	4.6	2.8	7.4	4.6	2.8	7.4	4.6	2.8	7.4	4.6	2.8	7.4
29,983,681																					
Fireman's	4.7	3.9	8.6	4.7	3.9	8.6	4.7	3.9	8.6	4.7	3.9	8.6	4.7	3.9	8.6	4.7	3.9	8.6	4.7	3.9	8.6
21,785,738																					
50,774,022																					
Hamilton	3.6	8.2	11.8	3.6	8.2	11.8	3.6	8.2	11.8	3.6	8.2	11.8	3.6	8.2	11.8	3.6	8.2	11.8	3.6	8.2	11.8
14,664,955																					
Home	4.5	6	10.5	4.5	6	10.5	4.5	6	10.5	4.5	6	10.5	4.5	6	10.5	4.5	6	10.5	4.5	6	10.5
87,898,328																					
Ins. Co. of N. A.	4.4	3.3	7.7	4.4	3.3	7.7	4.4	3.3	7.7	4.4	3.3	7.7	4.4	3.3	7.7	4.4	3.3	7.7	4.4	3.3	7.7
58,169,477																					
Metropolitan	4.7	4.8	9.5	4.7	4.8	9.5	4.7	4.8	9.5	4.7	4.8	9.5	4.7	4.8	9.5	4.7	4.8	9.5	4.7	4.8	9.5
29,281,926																					
National Lib.	4.4	1	5.4	4.4	1	5.4	4.4	1	5.4	4.4	1	5.4	4.4	1	5.4	4.4	1	5.4	4.4	1	5.4
16,672,401																					
Magenta	4.5	5.5	10.0	4.5	5.5	10.0	4.5	5.5	10.0	4.5	5.5	10.0	4.5	5.5	10.0	4.5	5.5	10.0	4.5	5.5	10.0
20,871,221																					
North River	5.2	11.8	17.0	5.2	11.8	17.0	5.2	11.8	17.0	5.2	11.8	17.0	5.2	11.8	17.0	5.2	11.8	17.0	5.2	11.8	17.0
10,423,112																					
Phenix	4.8	2.1	6.9	4.8	2.1	6.9	4.8	2.1	6.9	4.8	2.1	6.9	4.8	2.1	6.9	4.8	2.1	6.9	4.8	2.1	6.9
30,664,624																					
Queen	4.1	1	5.1	4.1	1	5.1	4.1	1	5.1	4.1	1	5.1	4.1	1	5.1	4.1	1	5.1	4.1	1	5.1
20,148,549.4																					
84, Paul 449	4.5	6	10.5	4.5	6	10.5	4.5	6	10.5	4.5	6	10.5	4.5	6	10.5	4.5	6	10.5	4.5	6	10.5
Springfield	5.0	1.9	6.9	5.0	1.9	6.9	5.0	1.9	6.9	5.0	1.9	6.9	5.0	1.9	6.9	5.0	1.9	6.9	5.0	1.9	6.9
25,163,270																					
U.S. Fire	4.2	3.9	8.1	4.2	3.9	8.1	4.2	3.9	8.1	4.2	3.9	8.1	4.2	3.9	8.1	4.2	3.9	8.1	4.2	3.9	8.1
25,119,697																					
Average	4.50	3.25	7.75	4.50	3.25	7.75	4.50	3.25	7.75	4.50	3.25	7.75	4.50	3.25	7.75	4.50	3.25	7.75	4.50	3.25	7.75
Average Compounded	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98
Rate Compounded	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98
Rate Compounded	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98
Rate Compounded	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98	139.66	174.32	313.98

TABLE XI



INVESTMENT EXPERIENCE TABLE OF BONDS AND STOCKS HELD BY THE  
25 LARGEST U. S. FIRE INSURANCE COMPANIES, 1908 TO 1927 (concluded)

Companies	1927			1928			1929			1930			1931			1932			1933			1934			1935			1936			Average
	Ins.	Agns.	Tot.	Ins.	Agns.	Tot.	Ins.	Agns.	Tot.	Ins.	Agns.	Tot.	Ins.	Agns.	Tot.	Ins.	Agns.	Tot.	Ins.	Agns.	Tot.	Ins.	Agns.	Tot.	Ins.	Agns.	Tot.	Ins.	Agns.	Tot.	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	
Actna	4	8	12	7	4	11	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4	6	10	4			

TABLE XI—(Concluded)

## APPENDIX VI

INVESTMENT EXPERIENCE TABLES OF DOW-JONES  
SELECTIONS OF STOCKS AND BONDS



Table XII

## INVESTMENT EXPERIENCE TABLE OF INDUSTRIAL STOCKS

*Sources:* 1. Selections and revisions of individual stocks as currently maintained in the Dow-Jones Industrial Stock Averages.

2. Market values each January 1 and July 1 as appeared in the *Commercial and Financial Chronicle* which were checked against the values used in the original statistical data prepared for the Dow-Jones averages.

3. Cash dividends, stock dividends, stock split-ups, subscription rights and other changes in capital structure were obtained directly from the corporate records of the companies and checked against the figures of Standard Statistics Company after 1916. Previous to 1916 all published information on this matter was found fragmentary and unreliable.

4. Annual earnings figures were worked out from the most complete published statements that could be found. Most of the earnings figures prior to 1917 were worked out especially for this study by the Standard Statistics Company.

Figures in brackets ( ) in the lower section of the division for each stock (under the January 1 or July 1 columns) are the market prices prevailing when revisions were made. For example, in 1925 stock No. 9, we find that Anaconda Copper carried at 39.5 on July 1 was sold some time between July 1, 1925, and January 1, 1926, at 41.5, and General Motors was bought at 88.5. On January 1, 1926, General Motors had appreciated to 117.

Figures under "E" are the reported annual per share earnings in dollars of the stocks held on each January 1. Figures under "Inc" are the actual income in dollars paid on the stocks held during each six months' period. The values of rights and stock dividends are included in a square (□) or circle (O) respectively.

The upper part of each section under "%G" shows the per cent that cash dividends paid during each six months' period bear to the market value of each stock at the beginning of the six months' period. The lower part of each section under "%G" shows the percentage gain or loss in principal value, that is the per cent that the difference in market value of each stock between the beginning and end of each six months' period bears to the market value at the beginning of the period; also the percentage that the values of subscription rights and stock dividends bear to the market value of each stock at the beginning of the six months' period.



INVESTMENT EXPERIENCE TABLE OF INDUSTRIAL STOCKS (continued)

Composites	1905					1906					1907					1908					
	Jan.	F.	Inc.	SG	Jan.	F.	Inc.	SG	Jan.	F.	Inc.	SG	Jan.	F.	Inc.	SG	Jan.	F.	Inc.	SG	
1. National Lead	24.5	5.6	0	46.0	0	82.4	5.5	1	1.2	71.5	1	1.4	72	8	2.4	3	82	2.4	3.9	38.5	2.6
2. Amer. COP	34.4	5.2	0	87.6	0	0	0	0	-13.6	34.2	0	0	42.6	72.9	4.5	3	44.1	1.5	30.5	7.1	1.5
3. Peppine Iron	101.6	9.6	3	2.9	103	6.6	2.5	2.4	88.8	2.5	2.6	98	7.2	3	3	91.4	3	3	92	3	3
4. Amer. Sugar	82.1	8.7	2.7	3.3	117.8	2.1	3.5	2.1	187.6	11.5	3.5	2.1	129.3	3.5	2.5	150	12.9	3.5	70.3	13.4	4
5. Amer. Sugar	13.1	3.5	2.4	130.5	3.5	2.5	150	3	-13.6	8	0	0	31	10.4	0	0	13.4	7.8	7	3	4
6. U.S. Lead	101.8	-	0	108	4.5	4.2	109.5	-	4	3	100.3	4	3	106	-	4	3	99.3	16	-	4
7. U.S. Rob. Pk.	108.5	4.4	1.4	108.5	2	2.4	139.5	3.6	2	143.8	2	1.4	130	13	2	3	140	2.6	3	130	4
8. U.S. Electr.	112.5	4.4	1.4	108.5	2	2.4	139.5	3.6	2	143.8	2	1.4	130	13	2	3	140	2.6	3	130	4
9. Amer. Copper	74	2.2	3	82	2.3	2.8	109	5.9	3.5	3	90.3	3.5	3.9	114.6	9.2	3	3	86.8	3.5	4	1
10. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
11. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
12. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
13. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
14. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
15. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
16. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
17. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
18. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
19. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
20. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
21. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
22. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
23. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
24. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
25. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
26. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
27. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
28. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
29. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
30. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
31. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
32. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
33. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
34. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
35. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
36. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
37. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
38. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
39. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
40. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
41. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
42. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
43. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
44. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
45. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
46. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
47. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
48. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
49. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
50. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
51. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
52. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
53. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
54. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
55. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
56. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
57. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
58. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
59. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
60. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
61. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
62. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
63. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
64. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
65. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
66. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
67. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
68. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
69. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
70. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
71. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
72. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
73. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
74. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
75. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
76. U.S. Steel	111.0	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0	110	0	0
77. U.S. Steel	111.0	0	0	110	0																

TABLE XII (Continued)

[illegible]

INVESTMENT EXPERIENCE TABLE OF INDUSTRIAL STOCKS (continued)

Company	1913					1914					1915					1916				
	Jan. 1	Jan. 1	Jan. 1	Jan. 1	Jan. 1	Jan. 1	Jan. 1	Jan. 1	Jan. 1	Jan. 1	Jan. 1	Jan. 1	Jan. 1	Jan. 1	Jan. 1	Jan. 1	Jan. 1	Jan. 1		
1. National Lead	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
2. Amer. Can.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
3. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
4. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
5. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
6. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
7. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
8. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
9. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
10. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
11. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
12. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
13. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
14. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
15. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
16. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
17. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
18. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
19. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
20. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
21. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
22. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
23. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
24. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
25. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
26. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
27. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
28. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
29. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
30. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
31. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
32. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
33. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
34. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
35. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
36. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
37. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
38. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
39. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
40. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
41. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
42. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
43. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
44. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
45. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
46. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
47. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
48. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
49. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
50. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
51. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
52. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
53. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
54. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
55. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
56. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
57. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
58. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
59. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
60. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
61. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
62. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
63. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
64. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
65. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
66. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
67. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
68. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
69. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
70. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
71. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
72. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
73. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
74. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
75. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
76. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
77. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
78. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
79. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
80. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
81. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
82. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
83. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
84. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
85. Amer. Can. Co.	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50		
86. Amer. Can. Co.																				



Companies	1947				1948				1949				1950			
	Jan.-1	Mar.-1	May-1	Jul.-1	Jan.-1	Mar.-1	May-1	Jul.-1	Jan.-1	Mar.-1	May-1	Jul.-1	Jan.-1	Mar.-1	May-1	Jul.-1
1. Amer. Can. Ⓢ	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4
2. Amer. Can. Ⓢ	6.7	30.6	4.4	7.6	4.4	5.2	7.2	3.2	4.4	5.6	8.2	7.4	4.8	8.9	3.7	6.4
3. Amer. Can. Ⓢ	17.2	21.6	2.5	3.2	71.2	3.5	4.9	57.3	17.2	3.8	6.1	3.1	2.5	4.1	94.2	3.1
4. Amer. Can. Ⓢ	15.2	24.4	4.4	3.6	100.2	3.5	8.1	7.3	2.2	7.2	64.2	2.2	2.1	70.4	4.6	2.2
5. Amer. Sugar & Ref. Ⓢ	111.3	20.3	3.5	3.1	123.5	3.5	2.9	101.4	16.4	4.6	4.6	4.6	4.6	113.3	22.5	5.1
6. Amer. Sugar & Ref. Ⓢ	123.3	9.5	4.4	5.1	123.5	4.4	3.2	106.3	10.4	4.4	4.4	4.4	4.4	101.4	10.4	4.4
7. Amer. Sugar & Ref. Ⓢ	94.4	16.9	15.5	16.5	93.2	4.4	5.5	73.2	6.4	4.4	5.5	71.4	4.4	5.6	70.1	14.2
8. Amer. Sugar & Ref. Ⓢ	161.2	26.5	4.4	2.4	162.4	4.4	2.5	134.5	14.6	4.6	4.6	4.6	4.6	147.4	2.1	4.4
9. Gen. Electric Ⓢ	83.2	14.7	4.4	3.1	80.4	4.5	2.2	67.3	6.7	4.4	6.6	6.6	6.6	60.7	2.3	4.4
10. Gen. Electric Ⓢ	51.4	37.2	0	0	74.2	0	0	61.2	42.5	0	0	90.4	0	73.4	24.3	1.7
11. Gen. Electric Ⓢ	87.4	30.4	4.5	5.2	94.2	4.5	4.6	66.4	10.4	3.5	5.3	69.4	3.5	5.3	30.1	3.5
12. Gen. Electric Ⓢ	59.3	13.3	2.1	3.1	45.4	2.1	2.2	45.4	2.1	2.2	45.4	2.1	2.2	45.4	2.1	2.2
13. Gen. Electric Ⓢ	230.6	42.5	5.1	2.2	212.5	5.1	2.4	145.3	30.5	5.1	3.4	157.4	5.1	3.3	185.4	24.2
14. Utah Copper Ⓢ	101.4	17.6	7.1	6.6	109.7	7.1	6.3	81.6	11.4	5.1	5.1	81.6	5.1	5.1	81.6	5.1
15. Standard Oil Ⓢ	101.5	9.1	3.5	3.4	66.4	3.5	5.3	53.3	10.4	2.1	3.1	45.4	2.1	4.4	51.6	19.3
16. U.S. Rubber Ⓢ	61.4	23.3	0	0	58.1	0	0	52.1	30.6	0	0	58.1	0	0	52.1	30.6
17. U.S. Steel Ⓢ	109.5	39.1	7.25	6.6	128.3	7.25	6.1	95.7	22.1	8.5	8.5	104.1	7.5	7.2	90.5	10.1
18. U.S. Steel Ⓢ	95.6	14.4	1.8	4.4	94.5	1.8	3.2	86.6	11.6	4.3	5.1	89.3	3.5	3.9	81.4	13.1
19. U.S. Steel Ⓢ	94.2	10.2	1.8	3.3	50.4	2.1	4.4	41.3	10.4	3.7	4.1	42.2	3.7	4.1	41.3	10.4
20. Republic Ⓢ	95.3	21.6	3.1	4.3	91.6	3.1	4.3	81.6	22.2	3.1	4.3	81.6	22.2	3.1	4.3	81.6
21. Republic Ⓢ	97.1	21.6	3.1	4.3	91.6	3.1	4.3	81.6	22.2	3.1	4.3	81.6	22.2	3.1	4.3	81.6

Average Income	4.1	3.7	3.81	4.12	3.7	3.70	2.87	3.04
Total Income & Apprs.	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6
- Residuals Rental Rate	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52
Net Gain	309.49	255.33	275.02	275.02	275.02	275.02	275.02	275.02
Index A	311.05	311.05	311.05	311.05	311.05	311.05	311.05	311.05
Index B	346.26	346.26	346.26	346.26	346.26	346.26	346.26	346.26
Index C	351.52	351.52	351.52	351.52	351.52	351.52	351.52	351.52
Index D	419.22	419.22	419.22	419.22	419.22	419.22	419.22	419.22
Average of Earn. to Jan. 1 selling price	28.5	33.1	33.1	33.1	33.1	33.1	33.1	33.1
Previous Year	27.9	25.4	25.4	25.4	25.4	25.4	25.4	25.4
Following Year	27.9	25.4	25.4	25.4	25.4	25.4	25.4	25.4

TABLE XII (Continued)

## INVESTMENT EXPERIENCE TABLE OF INDUSTRIAL STOCKS (concluded)

Companies	1921					1922					1923					1924				
	Jan. 1	Mar. 1	May 1	Jul. 1	Dec. 31	Jan. 1	Mar. 1	May 1	Jul. 1	Dec. 31	Jan. 1	Mar. 1	May 1	Jul. 1	Dec. 31	Jan. 1	Mar. 1	May 1	Jul. 1	Dec. 31
1. Amer. Can. Ⓢ	28.0	28.0	0	28.0	28.0	28.0	28.0	0	28.0	28.0	28.0	28.0	0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
2. Amer. Can. Ⓢ	125.2	131.6	6.4	145.1	131.7	6.4	145.1	131.7	6.4	145.1	131.7	6.4	145.1	131.7	6.4	145.1	131.7	6.4	145.1	131.7
3. Amer. Loco. Ⓢ	84.4	13.4	3.1	3.6	40.0	3.1	20.2	103.4	22.5	3.1	15.2	103.4	22.5	3.1	15.2	103.4	22.5	3.1	15.2	103.4
4. Amer. Sm. & R. Ⓢ	38.0	-4.1	0	36.4	0	0	0	44.1	3.3	0	7.5	59.3	0	0	51.7	8.4	1.2	2.1	34.2	6.4
5. Amer. Sugar Ⓢ	93.0	-2.5	1.8	-1.7	12.4	1.7	2.3	54.5	11.7	0	0	79.0	0	0	19.2	1.9	0	-6.4	0	0
6. Amer. T. & E. Ⓢ	99.0	11.1	4.2	4.2	103.1	4.5	4.4	114.6	11.1	4.5	4.9	120.2	4.5	4.9	120.2	4.5	4.9	120.2	4.5	4.9
7. Am. Beet Sugar Corp. Ⓢ	69.2	9.1	3.1	4.3	66.2	3.1	4.5	9.1	17.1	3.1	3.2	107.2	3.1	4.5	9.1	17.1	3.1	3.2	107.2	3.1
8. Gen. Electric Ⓢ	124.2	13.4	3.1	3.3	126.5	4.4	3.9	139.4	15.1	4.4	3.9	167.1	4.4	3.9	167.1	4.4	3.9	167.1	4.4	3.9
9. Anaconda Ⓢ	38.0	-7.1	0	37.4	0	0	0	49.1	1.2	0	0	51.2	0	0	50.0	2.9	1.8	1.6	39.0	2.2
10. Baldwin Loco. Ⓢ	68.5	18.2	3.5	18.3	11.3	3.5	11.3	34.5	19.2	3.5	3.7	112.6	3.5	3.7	112.6	3.5	3.7	112.6	3.5	3.7
11. Gen. Lehigh & DuPont Int. Harv. Ⓢ	40.0	-3.4	0	34.2	0	0	0	30.1	-2.2	0	0	38.0	0	0	33.6	-2.4	0	-40.5	0	0
12. Goodrich Ⓢ	42.0	-14.4	1.5	-16.5	3.6	29.4	0	35.4	4.7	0	0	39.1	0	0	35.4	4.7	0	35.4	4.7	0
13. Texas Co. Ⓢ	43.8	1.5	1.5	3.4	1.5	26.4	4.3	4.3	7.4	1.5	10.8	47.2	1.5	1.5	4.9	1.7	1.5	4.9	1.7	1.5
14. Utah Copper & S. of S. Ⓢ	54.0	-2.1	3.5	2.8	48.5	1.1	2.1	61.7	1.1	1.1	6.1	63.1	1.1	1.1	6.1	63.1	1.1	1.1	6.1	63.1
15. S. & W. Steel Ⓢ	50.5	16.7	3.5	15.4	13.5	49.3	21.2	31.1	23.2	5.1	2.1	128.4	5.1	5.1	131.4	23.1	5.1	4.3	99.5	5.1
16. U.S. Rubber Ⓢ	67.7	-6.5	2.1	3.1	50.4	2.1	4.1	52.4	2.6	0	0	63.0	0	0	56.5	2.3	0	4.1	41.0	0
17. U.S. Steel Ⓢ	85.7	2.2	2.5	3.1	74.5	2.5	3.1	82.5	2.8	2.5	3.1	98.4	2.5	2.5	101.3	16.4	2.5	2.3	90.1	2.5
18. Western Union Ⓢ	87.5	9.6	1.5	4.1	87.5	3.4	4.1	90.5	4.2	3.4	3.9	97.4	3.4	3.4	117.1	13.6	3.4	3.4	108.1	3.4
19. Westinghouse Ⓢ	45.2	3.9	2.1	2.4	43.1	2.1	4.1	49.7	8.2	2.1	4.1	50.4	2.1	4.1	59.6	9.1	2.1	3.4	59.6	9.1
20. Nelson Lumber Ⓢ	65.4	-23.3	3.1	-29.2	8.0	0	0	51.1	-4.4	0	0	10.6	0	0	51.1	-4.4	0	51.1	-4.4	0
21. Woolworth Ⓢ	2.99	-4.3	0	2.99	0	0	0	2.99	0	0	0	2.99	0	0	2.99	0	0	2.99	0	0

## Average Income

2.99

-4.3

-2.87

-2.87

-2.87

-2.87

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Total Income &amp; Appre.

-3.54

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Net Gain

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Average % Earn. to Jan. 1

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Companies.	1925				1926				1927			
	Jan. 1	E.	Inc.	50	Jan. 1	E.	Inc.	50	Jan. 1	E.	Inc.	50
1. Amer. Can.®	161.	37.8	4.5	2.6	198.	2.5	1.3	794.	4.4	108.	9.8	171.3
2. Amer. Can.®	209.	33.4	6.	3.1	103.5	3.	2.9	109.	6.7	101.	103.	4.2
3. Amer. Can.®	208.	55.	9.	8.3	116.	9.	7.8	118.	8.	4.	3.4	105.
4. Amer. Can.®	98.	19.2	3.	3.4	103.5	3.5	2.7	113.	31.	35.5	131.	4.
5. Amer. Sugar®	52.5	3.4	0	66.	2.3	2.	75.	6.	2.5	3.3	20.5	3.6
6. Amer. Sugar®	131.5	11.7	4.5	55.1	140.	4.5	13.6	102.5	12.	4.5	3.6	101.
7. Amer. Sugar®	88.	9.8	4.1	4.7	95.5	4.1	4.1	115.	10.3	4.	3.4	122.
8. Amer. Sugar®	116.	20.5	1.	9.7	208.	1.	9.2	2.	3.5	137.	4.	3.4
9. Amer. Sugar®	47.	5.8	1.5	3.2	37.5	1.	9.5	117.	23.5	1.5	6.4	148.
10. Amer. Sugar®	132.	16.	1.5	2.7	115.5	3.5	3.	179.	18.	3.	2.3	122.
11. Amer. Sugar®	137.	12.5	5.	3.6	180.	5.	4.1	113.5	18.	0	108.	0
12. Amer. Sugar®	119.	12.4	3.	8.5	183.	3.	10.7	150.	9.5	3.	7.	117.2
13. Amer. Sugar®	152.	20.9	3.	2.	172.	3.	1.7	235.	5.2	4.	5.7	52.6
14. Amer. Sugar®	63.	6.	1.	1.6	59.5	0	3.2	54.3	5.8	1.5	2.8	51.6
15. Amer. Sugar®	46.	8.5	2.6	5.1	61.3	3.5	5.7	47.1	10.	2.	3.6	125.2
16. Amer. Sugar®	42	14.9	0	0	55.	0	86.	10.5	0	0	59.	0
17. Amer. Sugar®	120.	12.9	3.5	3.8	115.5	3.5	45.5	18.	4.	3.4	135	18.
18. Amer. Sugar®	117.	15.2	3.5	3.	134.	3.5	2.6	135.3	15.3	4.	3.	105.
19. Amer. Sugar®	74.	6.	2.	14.5	7.	11.	2.	107.5	10.	4.	3.	116.6
20. Amer. Sugar®	121.	9.5	1.5	1.2	158.	1.5	1.	212	10.8	3.	1.4	166.5
Average Income	11.16	2.85	3.20	2.44	2.33	6.03	2.71	2.46	2.33	6.03	2.71	2.46
Appreciation & Amort.	11.16	2.85	3.20	2.44	2.33	6.03	2.71	2.46	2.33	6.03	2.71	2.46
Depreciation & Amort.	13.99	23.45	0.11	8.55	0.11	8.55	0.11	8.55	0.11	8.55	0.11	8.55
Net Gain	12.77	21.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60
Compounded Index A	429.59	574.76	561.37	561.37	561.37	561.37	561.37	561.37	561.37	561.37	561.37	561.37
Index B	1466.29	2091.51	2093.81	2093.81	2093.81	2093.81	2093.81	2093.81	2093.81	2093.81	2093.81	2093.81
Index C	876.49	1331.32	1331.32	1331.32	1331.32	1331.32	1331.32	1331.32	1331.32	1331.32	1331.32	1331.32
Average 1/2 Econ. to Jan. 1	10.7	9.65	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7
Following Year	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1
4. Kennecott bt. Aug. 31, 1925 @ 55-cents Dec. 31 @ 55												
5. Kennecott bt. Dec. 31, 1925 @ 115-cents Dec. 31, 1927 @ 166												
6. U.S. Realty sold Dec. 31, 1925 @ 166												

TABLE XII (Continued)

4. Kennecott bt. Aug. 31, 1925 @ 55-cents Dec. 31, 1927 @ 113  
 5. Kennecott bt. Dec. 31, 1925 @ 115-cents Dec. 31, 1927 @ 166  
 6. U.S. Realty sold Dec. 31, 1925 @ 166

24.75  
 3146.71  
 830.88  
 1032.20  
 1044.56

24.75  
 3146.71  
 830.88  
 1032.20  
 1044.56

24.75  
 3146.71  
 830.88  
 1032.20  
 1044.56

## Table XIII

## INVESTMENT EXPERIENCE TABLE OF RAILROAD STOCKS

*Sources:* 1. Selections and revisions of individual stocks as currently maintained in the Dow-Jones Railroad Stock Averages.

2. Market values each January 1 and July 1 as appeared in the *Commercial and Financial Chronicle* which were checked against the values used in the original statistical data prepared for the Dow-Jones averages.

3. Cash dividends, stock dividends, stock split-ups, subscription rights and other changes in capital structure were obtained directly from the corporate records of the companies and checked against the figures of Standard Statistics Company after 1916. Previous to 1916 all published information on this matter was found fragmentary and unreliable.

Figures in brackets ( ) in the lower section of the division for each stock (under the January 1 or July 1 columns) are the market prices prevailing when revisions were made.

Figures under "E" are the published annual per share earnings in dollars of the stocks held on each January 1. Figures under "Inc" are the actual income in dollars paid on the stocks held during each six months' period. The values of rights and stock dividends are included in a square ( □ ) or circle ( O ) respectively.

The upper part of each section under "%G" shows the per cent that cash dividends paid during each six months' period bear to the market value of each stock at the beginning of the six months' period. The lower part of each section under "%G" shows the percentage gain or loss in principal value, that is the per cent that the difference in market value of each stock between the beginning and end of each six months' period bears to the market value at the beginning of the period; also the percentages that the values of subscription rights and stock dividends bear to the market value of each stock at the beginning of the six months' period.







INVESTMENT EXPERIENCE TABLE OF RAILROAD STOCKS (continued)

Companies	1949				1950				1951				1952				1953			
	Jan. 1	E.	Inc.	Div.	Jan. 1	E.	Inc.	Div.	Jan. 1	E.	Inc.	Div.	Jan. 1	E.	Inc.	Div.	Jan. 1	E.	Inc.	Div.
1. Atchafalaya	28.6	5.92	2.	2.3	28.6	5.92	2.3	2.3	28.6	5.92	2.3	2.3	28.6	5.92	2.3	2.3	28.6	5.92	2.3	2.3
2. B. & O.	135.9	9.07	2.	1.9	135.9	9.07	2.3	1.9	135.9	9.07	2.3	1.9	135.9	9.07	2.3	1.9	135.9	9.07	2.3	1.9
3. Met. St. Railway	175.5	-	3.5	2.9	177.8	3.5	2.9	3.5	177.8	3.5	2.9	3.5	177.8	3.5	2.9	3.5	177.8	3.5	2.9	3.5
4. Del. & Hudson	141.9	11.48	3.5	1.9	141.9	11.48	3.5	1.9	141.9	11.48	3.5	1.9	141.9	11.48	3.5	1.9	141.9	11.48	3.5	1.9
5. Chic. & Northwestern	205.9	12.31	3.5	3.3	205.9	12.31	3.5	3.3	205.9	12.31	3.5	3.3	205.9	12.31	3.5	3.3	205.9	12.31	3.5	3.3
6. Un. Pacific pref'd	97	-	5	3.6	97	-	5	3.6	97	-	5	3.6	97	-	5	3.6	97	-	5	3.6
7. Gen. Invest. Corp.	100	4.13	0	0	100	4.13	0	0	100	4.13	0	0	100	4.13	0	0	100	4.13	0	0
8. B. & O.	61.8	2.55	0	0	61.8	2.55	0	0	61.8	2.55	0	0	61.8	2.55	0	0	61.8	2.55	0	0
9. Louis. & Nashville	141	11.31	3.	2.4	141	11.31	3.	2.4	141	11.31	3.	2.4	141	11.31	3.	2.4	141	11.31	3.	2.4
10. Manhattan Elev.	164	-	4	2.4	164	-	4	2.4	164	-	4	2.4	164	-	4	2.4	164	-	4	2.4
11. Northern Pacific	162	-	1.5	2.5	162	-	1.5	2.5	162	-	1.5	2.5	162	-	1.5	2.5	162	-	1.5	2.5
12. Mo. Pacific	107.8	6.98	2.5	2.2	107.8	6.98	2.5	2.2	107.8	6.98	2.5	2.2	107.8	6.98	2.5	2.2	107.8	6.98	2.5	2.2
13. N.Y. Central	15.4	6.70	2.5	1.7	15.4	6.70	2.5	1.7	15.4	6.70	2.5	1.7	15.4	6.70	2.5	1.7	15.4	6.70	2.5	1.7
14. Pennsylvania	139.3	9.08	3.	2.1	139.3	9.08	3.	2.1	139.3	9.08	3.	2.1	139.3	9.08	3.	2.1	139.3	9.08	3.	2.1
15. Union Pacific	116.4	11.91	2.	1.7	116.4	11.91	2.	1.7	116.4	11.91	2.	1.7	116.4	11.91	2.	1.7	116.4	11.91	2.	1.7
16. Wash. pfd.	43	-	0	46.1	0	46.1	0	46.1	0	46.1	0	46.1	0	46.1	0	46.1	0	46.1	0	46.1
17. Gen. Pacific	135.6	8.78	3.	2.1	135.6	8.78	3.	2.1	135.6	8.78	3.	2.1	135.6	8.78	3.	2.1	135.6	8.78	3.	2.1
18. St. Paul	174.8	14.53	3.5	1.3	174.8	14.53	3.5	1.3	174.8	14.53	3.5	1.3	174.8	14.53	3.5	1.3	174.8	14.53	3.5	1.3
19. So. Ry.	36.8	9.5	0	37.5	0	37.5	0	37.5	0	37.5	0	37.5	0	37.5	0	37.5	0	37.5	0	37.5
20. Illinois Central	157.8	10.65	3.5	2.3	157.8	10.65	3.5	2.3	157.8	10.65	3.5	2.3	157.8	10.65	3.5	2.3	157.8	10.65	3.5	2.3
Average	1.75	1.67	1.69	1.69	1.75	1.67	1.69	1.69	1.75	1.67	1.69	1.69	1.75	1.67	1.69	1.69	1.75	1.67	1.69	1.69
Appreciation	5.92	2.47	2.47	2.47	5.92	2.47	2.47	2.47	5.92	2.47	2.47	2.47	5.92	2.47	2.47	2.47	5.92	2.47	2.47	2.47
Total Income & Appreciation	1.75	1.67	1.69	1.69	1.75	1.67	1.69	1.69	1.75	1.67	1.69	1.69	1.75	1.67	1.69	1.69	1.75	1.67	1.69	1.69
Index A	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25
Index B	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25
Index C	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25
Compound Index A	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25
Index B	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25
Index C	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25	128.60	148.06	158.19	168.25

TABLE XIII (Continued)

Companies	1909				1910				1911				1912			
	Jan. 1	Dec. 31	Inc.	%	Jan. 1	Dec. 31	Inc.	%	Jan. 1	Dec. 31	Inc.	%	Jan. 1	Dec. 31	Inc.	%
1. Atchison	100.8	112.10	2.8	2.8	115.6	121.1	5.5	4.8	122.5	128.8	6.3	5.2	130.6	137.3	6.7	5.1
2. B. & O.	111.3	6.62	3.	2.7	117.8	11.	6.8	5.8	125.5	6.89	3.	2.4	131.3	137.3	6.0	4.6
3. Twin City R. P.	97.	6.44	2.5	2.6	104.3	108.6	4.3	4.1	116.5	122.2	5.7	5.3	124.3	130.6	6.3	5.1
4. Lehigh Valley	118.3	12.22	4.5	3.8	124.4	129.4	5.0	4.0	130.4	135.4	5.0	3.8	136.4	141.4	5.0	3.6
5. Del. & Hudson	134.5	12.43	3.5	2.6	139.5	144.5	5.0	3.6	144.5	149.5	5.0	3.5	149.5	154.5	5.0	3.4
6. Chic. & North-western	101.1	10.6	3.	2.9	106.1	111.1	5.0	4.7	111.1	116.1	5.0	4.5	121.1	126.1	5.0	4.1
7. Pac. & Western	121.	10.6	3.	2.5	126.1	131.1	5.0	3.9	131.1	136.1	5.0	3.8	141.1	146.1	5.0	3.5
8. B. & R. T.	179.	4.16	2.	1.1	184.1	189.1	5.0	2.7	189.1	194.1	5.0	2.6	199.1	204.1	5.0	2.5
9. Rock Is.	143.	8.73	3.5	2.4	148.3	153.3	5.0	3.4	153.3	158.3	5.0	3.3	163.3	168.3	5.0	3.1
10. Seaboard Air-line	137.	12.38	2.5	1.8	142.3	147.3	5.0	3.5	147.3	152.3	5.0	3.4	157.3	162.3	5.0	3.2
11. Northern Pacific	143.	8.73	3.5	2.4	148.3	153.3	5.0	3.4	153.3	158.3	5.0	3.3	163.3	168.3	5.0	3.1
12. Reading	143.4	8.73	3.5	2.4	148.3	153.3	5.0	3.4	153.3	158.3	5.0	3.3	163.3	168.3	5.0	3.1
13. Union Pacific	143.4	8.73	3.5	2.4	148.3	153.3	5.0	3.4	153.3	158.3	5.0	3.3	163.3	168.3	5.0	3.1
14. Gen. Central	130.	1.70	1.5	1.1	135.1	140.1	5.0	3.7	140.1	145.1	5.0	3.6	150.1	155.1	5.0	3.3
15. Feunoy/wealth	132.1	10.96	3.	2.3	137.1	142.1	5.0	3.6	142.1	147.1	5.0	3.5	152.1	157.1	5.0	3.3
16. Union Pacific	133.6	16.57	5.	3.7	138.6	143.6	5.0	3.6	143.6	148.6	5.0	3.5	153.6	158.6	5.0	3.3
17. Erie	34.5	3.35	0	0	39.5	44.5	5.0	12.7	44.5	49.5	5.0	11.3	49.5	54.5	5.0	10.2
18. Gen. Pacific	137.3	8.62	3.5	2.5	142.3	147.3	5.0	3.5	147.3	152.3	5.0	3.4	152.3	157.3	5.0	3.3
19. St. Paul	153.1	11.56	3.5	2.3	158.1	163.1	5.0	3.2	163.1	168.1	5.0	3.1	173.1	178.1	5.0	2.9
20. So. Railway	26.8	4.3	0	0	31.8	36.8	5.0	15.7	36.8	41.8	5.0	15.3	41.8	46.8	5.0	12.2
21. Illinois Central	148.5	7.46	3.5	2.4	153.5	158.5	5.0	3.3	158.5	163.5	5.0	3.2	163.5	168.5	5.0	3.1
Average	1.97	1.90			2.10	2.03			2.19	2.10			2.19	2.03		
Income	6.44	6.44			6.44	6.44			6.44	6.44			6.44	6.44		
Appreciation	2.15	2.15			2.15	2.15			2.15	2.15			2.15	2.15		
Total Income & Appr.	4.32	4.32			4.32	4.32			4.32	4.32			4.32	4.32		
Income & Appr. Rate	-2.20	-2.20			-2.20	-2.20			-2.20	-2.20			-2.20	-2.20		
Index A	143.30	152.53			152.53	161.56			161.56	170.59			170.59	179.62		
Index B	136.69	145.72			145.72	154.75			154.75	163.78			163.78	172.81		
Index C	145.72	154.75			154.75	163.78			163.78	172.81			172.81	181.84		



Company	1917				1918				1919				1920			
	Jan. 1	E. Inc.	GO	Inc.	Jan. 1	E. Inc.	GO	Inc.	Jan. 1	E. Inc.	GO	Inc.	Jan. 1	E. Inc.	GO	Inc.
1. Atchafalaya	104.1	14.5	3.1	-1.6	104.1	14.5	3.1	-1.6	104.1	14.5	3.1	-1.6	104.1	14.5	3.1	-1.6
2. B. & O.	84.4	3.8	2.5	3.1	77.2	2.5	3.5	77.2	2.5	3.5	77.2	2.5	3.5	77.2	2.5	3.5
3. Lehigh Valley	157.6	11.8	5.1	-1.2	157.6	11.8	5.1	-1.2	157.6	11.8	5.1	-1.2	157.6	11.8	5.1	-1.2
4. Del. & Hudson	149.6	11.8	4.5	3.1	110.4	4.5	4.1	107.6	2.1	4.5	4.1	107.6	2.1	4.5	4.1	107.6
5. Ches. & Ohio	64.6	11.3	7.1	3.1	60.6	12.2	3.8	51.1	14.1	7.1	3.1	60.6	12.2	3.8	51.1	14.1
6. Nor. & Western	115.2	15.5	4.5	3.1	104.4	3.5	2.8	103.5	10.6	3.5	3.4	103.5	10.6	3.5	3.4	103.5
7. So. Pacific	97.4	18.0	3.1	3.1	93.5	3.1	3.2	83.5	14.2	3.1	3.6	83.1	11.1	100.3	9.0	3.1
8. New Haven	51.4	3.5	0	-3.2	51.4	3.5	0	31.6	-4.6	0	0	31.6	-4.6	0	0	31.6
9. Louis. & Nashville	132.2	22.3	3.5	2.6	127.1	3.5	7.8	111.3	10.5	3.5	3.1	111.3	10.5	3.5	3.1	111.3
10. No. Pacific	109.7	11.5	3.5	3.2	104.4	3.5	2.1	86.2	1.6	3.5	3.1	87.2	1.5	4.4	94.2	4.4
11. Reading	205.2	10.4	2.1	-8.1	108.6	4.1	2.1	145.6	10.4	4.1	2.1	182.2	4.1	2.2	165.4	9.4
12. Kansas City So.	25.7	5.9	0	23.1	25.7	5.9	0	18.1	6.0	0	18.1	6.0	0	18.1	6.0	0
13. N.Y. Central	102.5	10.3	2.5	-2.2	92.4	2.5	2.1	71.6	6.4	2.5	3.5	72.4	2.5	3.5	75.5	6.8
14. Pennsylvania	113.6	7.8	3.1	2.6	107.1	3.1	2.8	93.4	-5.1	3.1	3.2	86.6	3.1	3.6	90.2	-2.1
15. Union Pacific	148.1	16.9	6.3	-7.9	136.4	4.1	1.9	114.2	18.6	4.5	4.9	121.4	5.1	3.3	124.1	14.5
16. Erie	33.7	-6.6	0	25.1	33.7	-6.6	0	16.2	-11.8	0	6.3	15.4	0	4.2	17.2	0
17. Can. Pacific	103.2	35.9	5.1	-23.7	159.4	5.1	-1.4	140.1	10.9	5.1	3.6	146.1	5.1	3.7	156.4	5.1
18. St. Paul	30.4	-3.1	2.5	2.8	16.2	2.5	2.6	45.4	-17.6	0	4.7	0	0	38.7	-18.4	0
19. So. Railway	32.1	9.2	0	-1.6	27.6	0	-15.2	23.4	11.3	0	-0.5	23.5	0	-0.5	23.5	0
20. Missouri Central	106.1	14.1	3.5	-1.3	102.5	3.5	-8.1	91.4	7.1	3.5	3.8	96.1	3.5	3.7	96.4	-1.2
Average	2.43	8.66	-8.66	-14.42	2.43	8.66	-8.66	2.43	8.66	-8.66	-14.42	2.43	8.66	-8.66	-14.42	2.43
Income	125.15	111.23	92.74	95.55	125.15	111.23	92.74	95.55	125.15	111.23	92.74	95.55	125.15	111.23	92.74	95.55
Appreciation & Depreciation	239.45	157.72	157.72	157.72	239.45	157.72	157.72	157.72	239.45	157.72	157.72	157.72	239.45	157.72	157.72	157.72
Net Gain	364.60	268.95	250.48	253.27	364.60	268.95	250.48	253.27	364.60	268.95	250.48	253.27	364.60	268.95	250.48	253.27
Commodities Index A	105.15	111.23	92.74	95.55	105.15	111.23	92.74	95.55	105.15	111.23	92.74	95.55	105.15	111.23	92.74	95.55
Index B	239.45	157.72	157.72	157.72	239.45	157.72	157.72	157.72	239.45	157.72	157.72	157.72	239.45	157.72	157.72	157.72
Index C	364.60	268.95	250.48	253.27	364.60	268.95	250.48	253.27	364.60	268.95	250.48	253.27	364.60	268.95	250.48	253.27
Index D	105.15	111.23	92.74	95.55	105.15	111.23	92.74	95.55	105.15	111.23	92.74	95.55	105.15	111.23	92.74	95.55
Index E	239.45	157.72	157.72	157.72	239.45	157.72	157.72	157.72	239.45	157.72	157.72	157.72	239.45	157.72	157.72	157.72
Index F	364.60	268.95	250.48	253.27	364.60	268.95	250.48	253.27	364.60	268.95	250.48	253.27	364.60	268.95	250.48	253.27
Index G	105.15	111.23	92.74	95.55	105.15	111.23	92.74	95.55	105.15	111.23	92.74	95.55	105.15	111.23	92.74	95.55
Index H	239.45	157.72	157.72	157.72	239.45	157.72	157.72	157.72	239.45	157.72	157.72	157.72	239.45	157.72	157.72	157.72
Index I	364.60	268.95	250.48	253.27	364.60	268.95	250.48	253.27	364.60	268.95	250.48	253.27	364.60	268.95	250.48	253.27

TABLE XIII (Continued)



INVESTMENT EXPERIENCE TABLE OF RAILROAD STOCKS (concluded)

Company	1921				1922				1923				1924			
	Jan. 1	E. Inc.	Jan. 1	E. Inc.	Jan. 1	E. Inc.	Jan. 1	E. Inc.	Jan. 1	E. Inc.	Jan. 1	E. Inc.	Jan. 1	E. Inc.	Jan. 1	E. Inc.
1. Atchafalaya	83.5	14.7	3.1	3.6	80.4	3.1	3.7	91.7	12.4	3.1	3.3	100.3	3.1	2.9	97.8	3.1
2. B. & O.	36.1	2.7	0	-3.6	39.0	-12.9	0	34.0	1.3	0	49.2	0	49.2	0	49.2	0
3. Lehigh Valley	110.6	16.2	3.5	3.4	113.2	-6.6	3.5	3.4	113.2	-6.6	3.5	3.4	113.2	-6.6	3.5	3.4
4. Erie & Hudson	100.2	11.6	4.5	8.3	98.1	4.5	8.3	117.7	106.6	-1.1	4.5	8.3	117.7	106.6	-1.1	4.5
5. Ches. & Ohio	61.4	6.7	0	54.0	0	55.1	10.1	4.5	3.4	66.7	2.2	0	55.1	10.1	4.5	3.4
6. Nor. & Western	104.7	7.9	3.5	3.4	98.2	3.1	3.5	96.4	11.1	3.5	3.5	108.1	4.5	3.5	108.1	4.5
7. So. Pacific	99.8	8.9	3.1	3.4	73.7	3.1	3.4	78.2	9.4	3.1	3.4	89.1	3.1	3.4	78.2	9.4
8. New Haven	20.4	-9.7	0	18.1	0	17.5	-3.2	0	17.5	-3.2	0	17.5	-3.2	0	17.5	-3.2
9. Louis. & Nashville	102.1	-5.5	3.5	3.4	110.1	-3.2	3.5	109.3	14.7	3.5	3.5	122.1	3.5	3.5	122.1	3.5
10. Mo. Pacific	83.4	8.9	3.5	4.2	74.3	3.5	4.2	76.1	6.1	3.5	4.2	74.3	3.5	4.2	76.1	6.1
11. Reading	167.1	-6.6	-19.4	135.4	4.4	5.6	143.1	12.7	4.4	5.6	143.1	12.7	4.4	5.6	143.1	12.7
12. Kansas City So.	20.4	4.9	0	26.3	0	23.1	2.5	0	23.1	2.5	0	24.5	0	24.5	0	24.5
13. N. Y. & N. H.	71.4	8.9	2.5	4.2	70.1	2.5	4.2	73.1	8.1	2.5	4.2	70.1	2.5	4.2	73.1	8.1
14. Pennsylvania	95.6	2.4	4.9	3.2	69.2	2.4	4.9	67.2	6.4	2.4	4.9	69.2	2.4	4.9	67.2	6.4
15. Union Pacific	127.1	12.3	5.1	4.1	117.7	5.1	4.1	127.1	12.3	5.1	4.1	127.1	12.3	5.1	4.1	127.1
16. Erie	14.2	-8.0	0	-7.0	13.3	0	0	10.4	-5.1	0	0	15.2	0	-1.0	13.3	0
17. Can. Pacific	117.1	11.5	5.1	4.3	109.1	5.1	4.3	119.6	11.7	5.1	4.3	119.6	11.7	5.1	4.3	119.6
18. St. Paul	29.6	16.3	0	-8.8	27.1	0	-8.8	18.2	12.0	0	44.5	0	44.5	0	44.5	0
19. So. Railway	23.1	-8.0	0	20.4	0	18.1	4.8	0	23.4	0	23.4	0	23.4	0	23.4	0
20. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
21. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
22. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
23. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
24. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
25. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
26. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
27. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
28. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
29. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
30. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
31. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
32. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
33. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
34. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
35. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
36. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
37. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
38. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
39. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
40. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
41. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
42. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
43. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
44. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
45. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
46. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
47. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
48. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
49. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
50. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
51. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
52. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
53. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
54. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
55. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
56. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
57. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
58. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
59. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
60. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
61. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
62. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
63. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
64. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
65. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
66. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
67. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
68. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
69. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
70. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
71. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
72. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
73. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
74. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
75. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
76. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
77. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
78. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1	105.1	3.5	4.1	105.1	3.5
79. Illinois Central	88.2	9.3	3.5	4.1	90.4	3.5	4.1	97.4	14.3	3.5	4.1					



Company	1924				1925				1926				1927			
	Jan. 1	Jul. 1	Inc	%	Jan. 1	Jul. 1	Inc	%	Jan. 1	Jul. 1	Inc	%	Jan. 1	Jul. 1	Inc	%
1. Atchafalpa	118.7	117.2	3.5	3	118.4	117.3	1.1	1	130.4	124.4	6.0	5	131.1	124.4	6.7	5
2. B. & O.	79.7	121.2	2.5	3	77.1	121.5	4.4	6	94.1	112.2	18.1	20	107.6	131.4	23.8	18
3. St. Louis Southw.	49.5	8.5	0	0	46.5	0	0	0	59.5	8.6	0	0	67.5	0	0	0
4. Dal. & Houston	135.2	114.4	4.5	3	136.5	115.2	21.3	15	147.8	132.3	15.5	11	155.1	131.1	24.0	18
5. Ches. & Ohio	95.3	21.3	3	3	94.8	2	2	2	126.8	124.8	2.0	2	137.2	137.2	0	0
6. Nor. & Western	139.1	101.1	3.5	3	127.7	101.5	26.2	26	140.3	126.7	13.6	11	158.2	137.6	20.6	15
7. So. Pacific	109.2	9.8	3	3	109.2	11.1	3	3	109.2	11.1	3	3	109.2	11.1	3	3
8. New Haven	105.2	4.7	0	0	105.2	4.7	0	0	105.2	4.7	0	0	105.2	4.7	0	0
9. Louis. & Nashville	108.3	116.3	3	3	111.7	117.3	5.6	5	126.5	126.3	0.2	0	132.8	132.8	0	0
10. No. Pacific	69.1	7.2	2.5	3	67.2	2.5	3	3	76.3	16.5	2.5	3	86.1	86.1	0	0
11. Reading	123.1	10.1	4	4	123.1	10.1	4	4	123.1	10.1	4	4	123.1	10.1	4	4
12. D. L. & W.	143.7	16.8	8	8	143.7	16.8	8	8	143.7	16.8	8	8	143.7	16.8	8	8
13. N. Y. Central	118.8	12.7	3.5	3	118.8	12.7	3.5	3	118.8	12.7	3.5	3	118.8	12.7	3.5	3
14. Pennsylvania	49.2	6.2	1.5	3	49.2	6.2	1.5	3	49.2	6.2	1.5	3	49.2	6.2	1.5	3
15. Union Pacific	149.1	15.4	5	5	149.1	15.4	5	5	149.1	15.4	5	5	149.1	15.4	5	5
16. Erie	31.4	3.7	0	0	31.4	3.7	0	0	31.4	3.7	0	0	31.4	3.7	0	0
17. Gen. Pacific	149.3	12.5	5	5	149.3	12.5	5	5	149.3	12.5	5	5	149.3	12.5	5	5
18. St. Paul	15.1	10.2	0	0	15.1	10.2	0	0	15.1	10.2	0	0	15.1	10.2	0	0
19. So. Railway	71.7	16.3	2.5	3	71.7	16.3	2.5	3	71.7	16.3	2.5	3	71.7	16.3	2.5	3
20. Illinois Central	116.2	12.9	1.5	1	116.2	12.9	1.5	1	116.2	12.9	1.5	1	116.2	12.9	1.5	1
Average	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36
Income	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36
Appreciation	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36
Total Income & Appre.	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36
- Rental Rate	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36
Net Gain	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36	2.41	2.36	2.36	2.36
Consolidated	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26
Index A	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26
Index B	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26
Index C	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26
Index D	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26	131.26

TABLE XIII (Concluded)

194.82  
620.29  
200.15  
329.65

168.08  
524.87  
166.99  
254.00

162.84  
497.13  
161.81  
244.23

159.24  
475.13  
161.81  
235.20

131.26  
381.16  
131.73  
191.60

131.26  
381.16  
131.73  
191.60

Table XIV

## INVESTMENT EXPERIENCE TABLE OF BONDS

*Sources:* 1. Selections and revisions of individual bonds as currently maintained in the Dow-Jones Bond Averages, April 1915 to date. Only one change from the original 1915 selections has been made to date, namely the substitution of Anaconda 6s—1953 in place of General Electric Debenture 5s—1952 that were called in 1925. Bonds carried in the table 1901 to 1915 consist of the selections of 1915 as far back as they have been outstanding.

2. Market Values each January 1 and July 1 as given in the *Commercial and Financial Chronicle* were checked against the figures used in the original statistical data prepared for the Dow-Jones Bond Averages.

Figures under “%Inc” represent the per cent that interest paid during each six months’ period bears to the market value of each bond at the beginning of the six months’ period. Figures under “%TG” represent the per cent of interest received plus the appreciation or depreciation in principal value during the six months’ period.

Indexes A, D, B, and C are based upon the average per cent of total gains from income and appreciation each six months. This average per cent total gain was obtained by adding the percentage figures for each bond and dividing by the number of bonds carried in the table for each period. That is, in the year 1901 we have only one public utility bond and no industrials, or a total of 21 different bonds. Public utility issues therefore have a weight of 1/21 and industrial issues have no weight in determining the movement of those indexes for the year 1901. This in effect gives increasing weight to public utility and industrial bonds in accordance with their growing importance as an investment medium.

(BASED ON BONDS USED IN DOW-JONES BOND AVERAGES)

COMPANIES	1901					1902					1903					1904					
	Jan. 1	T.G.	Jul. 1	Inc.	T.G.	Jan. 1	T.G.	Jul. 1	Inc.	T.G.	Jan. 1	T.G.	Jul. 1	Inc.	T.G.	Jan. 1	T.G.	Jul. 1	Inc.	T.G.	
LEGAL MAILBOXES	1901.1	1.96	3.33	103.5	1.93	.87	102.4	1.95	2.05	102.5	1.95	.98	101.0	1.98	.0	99.0	2.02	1.21	98.2	2.04	6.32
Atchafalaya, Neb.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
B. & O.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
Louis. & Wash.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
N. Y. C.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
Norfolk & Western	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
Union Pacific	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
Average	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
SECOND GREAT RAILROADS	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
Atchafalaya, Neb.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
B. & O.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
C. & N. Y. C.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
D. & R. O.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
Great	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
S. L. & M. & So.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0	99.0	2.00	1.21	100.0	2.00	4.50
St. Paul & Northern Pac.	1901.5	1.99	3.98	102.5	1.95	1.95	102.5	1.95	1.46	102.0	1.96	.59	101.0	1.98	.0						

TABLE XIV









INVESTMENT EXPERIENCE TABLE OF BONDS (continued)

COMPANIES	1933						1934						1935						1936							
	Jan.	T.C.	Incl.	T.G.	Inc.	T.C.	Jan.	T.C.	Incl.	T.G.	Inc.	T.C.	Jan.	T.C.	Incl.	T.G.	Inc.	T.C.	Jan.	T.C.	Incl.	T.G.	Inc.	T.C.		
LEGAL RAILROADS																										
Acheson gen. 4	1995	97.5	2.06	-1.53	94.0	2.1	1.28	93.1	2.2	1.15	5.09	95.9	2.09	-2.40	91.6	2.18	.87	90.4	2.21	10.33	94.2	2.13	.22	93.2	2.16	4.0
B. & O. 4	1958	97.0	2.06	-2.69	92.2	2.1	1.63	91.7	2.1	1.48	4.38	93.7	2.14	-1.62	89.5	2.24	-3.34	86.2	2.32	8.69	91.6	2.16	1.05	90.2	2.15	3.67
C. & E. 4	1958	94.9	2.1	-2.64	90.4	2.2	1.69	91.2	2.19	1.48	4.38	93.2	2.15	-1.62	89.5	2.24	-3.34	86.2	2.32	8.69	91.6	2.16	1.05	90.2	2.15	3.67
D. & W. 4	1958	94.9	2.1	-2.64	90.4	2.2	1.69	91.2	2.19	1.48	4.38	93.2	2.15	-1.62	89.5	2.24	-3.34	86.2	2.32	8.69	91.6	2.16	1.05	90.2	2.15	3.67
N. & W. 4	1958	94.9	2.1	-2.64	90.4	2.2	1.69	91.2	2.19	1.48	4.38	93.2	2.15	-1.62	89.5	2.24	-3.34	86.2	2.32	8.69	91.6	2.16	1.05	90.2	2.15	3.67
Penn. com. 4	1958	94.9	2.1	-2.64	90.4	2.2	1.69	91.2	2.19	1.48	4.38	93.2	2.15	-1.62	89.5	2.24	-3.34	86.2	2.32	8.69	91.6	2.16	1.05	90.2	2.15	3.67
Southern Pac. 4	1958	94.9	2.1	-2.64	90.4	2.2	1.69	91.2	2.19	1.48	4.38	93.2	2.15	-1.62	89.5	2.24	-3.34	86.2	2.32	8.69	91.6	2.16	1.05	90.2	2.15	3.67
Union Pacific 4	1958	94.9	2.1	-2.64	90.4	2.2	1.69	91.2	2.19	1.48	4.38	93.2	2.15	-1.62	89.5	2.24	-3.34	86.2	2.32	8.69	91.6	2.16	1.05	90.2	2.15	3.67
Western Union 4	1958	94.9	2.1	-2.64	90.4	2.2	1.69	91.2	2.19	1.48	4.38	93.2	2.15	-1.62	89.5	2.24	-3.34	86.2	2.32	8.69	91.6	2.16	1.05	90.2	2.15	3.67
SEABOARD GRADE RAILROADS																										
Acheson gen. 4	1995	77.5	2.58	-7.10	70.0	2.86	32.88	84.0	2.39	65.5	87.5	2.29	-4.95	81.6	2.45	3.06	80.2	2.43	8.40	87.4	2.29	-1.03	84.5	2.37	4.14	
B. & O. 4	1958	100.5	2.24	-7.43	93.5	2.1	2.40	93.7	2.40	2.39	4.49	95.0	2.39	-3.79	88.0	2.56	-1.98	84.0	2.68	11.49	94.7	2.49	1.37	90.0	2.57	4.39
C. & E. & Pac. 4	1958	92.9	2.3	-7.43	86.0	2.39	1.99	93.5	2.40	2.39	4.49	95.0	2.39	-3.79	88.0	2.56	-1.98	84.0	2.68	11.49	94.7	2.49	1.37	90.0	2.57	4.39
D. & W. 4	1958	92.9	2.3	-7.43	86.0	2.39	1.99	93.5	2.40	2.39	4.49	95.0	2.39	-3.79	88.0	2.56	-1.98	84.0	2.68	11.49	94.7	2.49	1.37	90.0	2.57	4.39
Erie 4	1958	86.0	2.32	-1.05	83.1	2.41	2.29	83.0	2.41	3.86	84.2	2.30	-2.61	80.0	2.50	1.25	79.0	2.53	11.01	85.7	2.34	1.67	85.5	2.34	2.46	
Kan. City So. 5	1950	97.1	2.36	-1.0	95.1	2.64	2.33	95.0	2.64	3.05	95.4	2.63	+0.08	89.0	2.81	4.38	90.4	2.76	6.43	94.0	2.66	-1.39	90.2	2.77	2.77	
N. & W. & So. 5	1931	104.5	2.42	-1.40	100.5	2.49	2.93	101.0	2.48	3.57	102.1	2.45	+2.05	97.5	2.56	1.23	96.2	2.62	6.81	102.0	2.45	-1.47	101.0	2.48	3.67	
S. & W. 5	1934	106.2	2.35	-1.32	101.2	2.47	3.46	102.2	2.45	5.19	105.0	2.38	-3.61	98.7	2.54	1.45	99.6	2.51	5.32	103.0	2.43	-0.81	104.0	2.46	2.73	
Union Pacific by. 5	1952	94.2	2.12	-2.56	91.2	2.56	3.25	92.5	2.56	3.25	3.25	92.5	2.56	-3.25	89.5	2.68	1.19	84.7	2.68	3.10	91.5	2.56	3.11	92.5	2.55	2.71
Average		94.2	2.12	-2.56	91.2	2.56	3.25	92.5	2.56	3.25	3.25	92.5	2.56	-3.25	89.5	2.68	1.19	84.7	2.68	3.10	91.5	2.56	3.11	92.5	2.55	2.71
PUBLIC UTILITIES																										
Cal. Gas & Elec. 5	1937	94.6	2.65	-6.63	91.5	2.7	1.74	97.0	2.58	2.58	37.0	2.58	-1.58	-1.58	93.0	2.63	1.77	94.0	2.66	6.38	98.0	2.55	2.19	97.7	2.56	4.30
Edison Elec. 5	1932	73.8	3.05	-4.54	69.2	3.0	4.47	69.0	3.26	5.43	70.5	3.20	-2.53	66.5	3.38	10.30	71.0	3.17	8.10	76.1	2.96	8.11	90.0	2.63	7.82	
Int. United Ry. 5	1966	96.2	2.5	-2.5	96.2	2.5	2.5	96.2	2.5	2.5	96.2	2.5	2.5	96.2	2.5	2.5	96.2	2.5	2.5	96.2	2.5	2.5	96.2	2.5	2.5	
N.Y. Gas & Elec. 5	1948	101.8	2.45	1.96	101.3	2.47	3.06	101.0	2.45	3.51	101.0	2.43	-1.0	100.6	2.49	5.18	101.3	2.48	2.60	102.0	2.46	2.60	102.0	2.46	2.60	
N.Y. Gas & Elec. 5	1948	101.8	2.45	1.96	101.3	2.47	3.06	101.0	2.45	3.51	101.0	2.43	-1.0	100.6	2.49	5.18	101.3	2.48	2.60	102.0	2.46	2.60	102.0	2.46	2.60	
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96.3	2.4	2.9	95.0	2.0	2.37	95.1	2.7	2.34	-4.5	95.0	2.37	1.74	94.8	2.63	6.73	96.5	2.34	2.00	98.2	2.32	3.40
P. & W. 4	1939	97.2	2.32	1.39	96																					

Average of All Bonds

Index A

Compound Index D

Compound { Index B

2 xopuy]

[illegible]

TABLE XIV (Continued)

	Average of all Bonds	2.38	-3.47	87.15	80.55	2.76	2.40	2.76	6.57	83.32	2.67	1.33	82.20	2.71	-3.39	2.92	-6.56	3.23	7.71
Index A	92.56																		
Index B	189.65			183.07	173.73		171.90		189.59				173.11			186.40		173.42	
Index C	94.63			85.76	82.40		85.60		89.01				88.07			82.98		74.86	
Compounds				89.27	82.64		82.04		84.05				83.40			76.39		70.01	





TABLE XIV (Concluded)








## APPENDIX VII

### DIVERGENT TRENDS OF INVESTMENT VALUES IN DIFFERENT INDUSTRIES

*Chart XXXIV (1-28)*RELATION OF STOCK PRICE TRENDS IN EACH MAJOR INDUSTRY  
TO THE PRICE TREND OF ALL STOCKS

Individual companies listed at the top of each chart are the ones used to determine the Stock Price Index for that group. The companies are weighted according to the market value of all outstanding shares and are listed on each chart in the order of their weighting.

The heavy fluctuating line  on each chart represents the price index of stocks in that group *deflated by the price trend for all stocks*. (For comparative purposes the price trend of all stocks is represented by the light fluctuating line .)

The heavy broken line  on each chart represents the deflated trend of all stocks, the base from which to measure the % variation of each group.

The scale at the right of each chart measures the % variation of that group from the trend of all stocks, beginning January 1, 1918.

The charts are arranged in accordance with the variation of each group from the trend of all stocks. The alphabetic listing immediately below gives the page reference for each of these groups.

<i>Group</i>	<i>Page</i>	<i>Group</i>	<i>Page</i>
Automobile	399	Misc. Industrials	404
Automobile Accessories	397	Paper	410
Chain Store	398	Petroleum	417
Chemical	408	Railroad	409
Coal	420	Railroad Equipment	403
Copper	416	Shipping	423
Electric Equipment	401	Steel	415
Farm Machinery	406	Sugar	422
Food	403	Telegraph & Cable	412
Gas, Traction & Power	407	Textile	421
Leather & Shoe	419	Theatre	413
Machine Mfg.	414	Tire & Rubber	418
Mail Order House	402	Tobacco	405
Metal, Misc.	411		

# AUTOMOBILE ACCESSORIES

- 1 GEN. MOTORS - FISHER BODY

2 STEWART-WARNER CORP.

3 KELSEY WHEEL, INC.

4 AMER. BOSCH MAGNETO

5 STROMBERG CARBURETOR
- 6 MULLINS BODY

7 MARTIN-PARRY CORP.

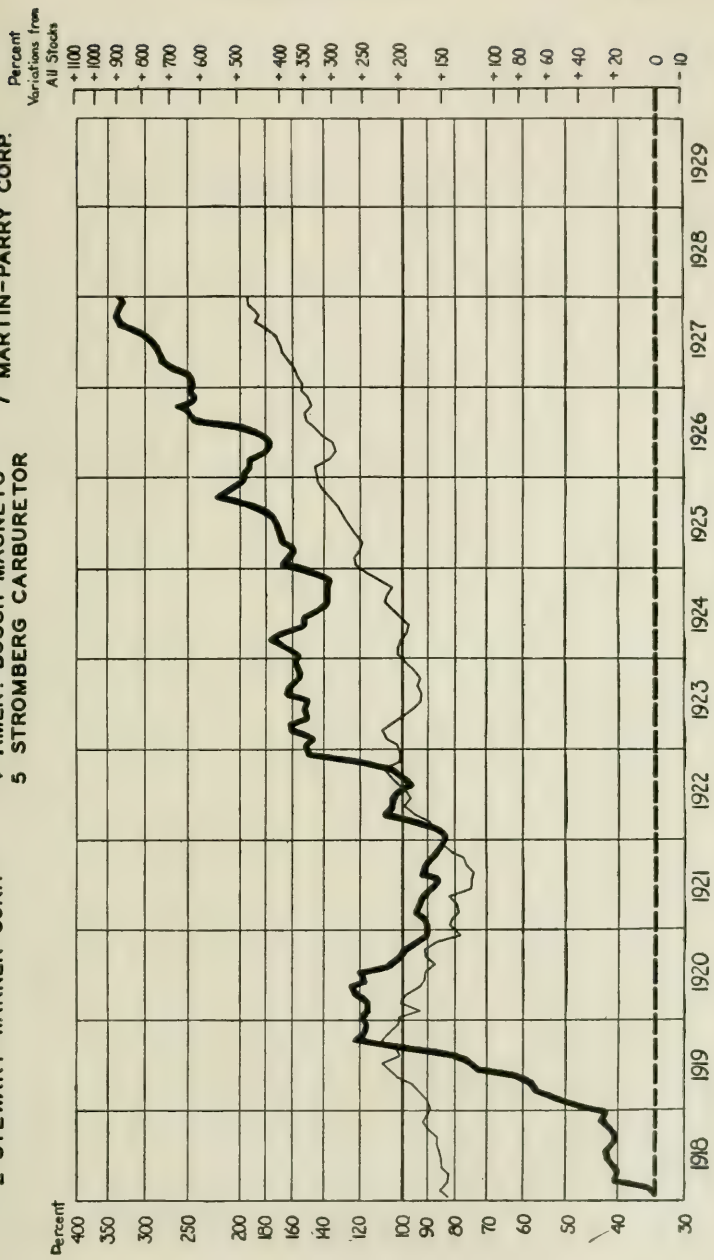


CHART XXXIV (1)

## CHAIN STORES

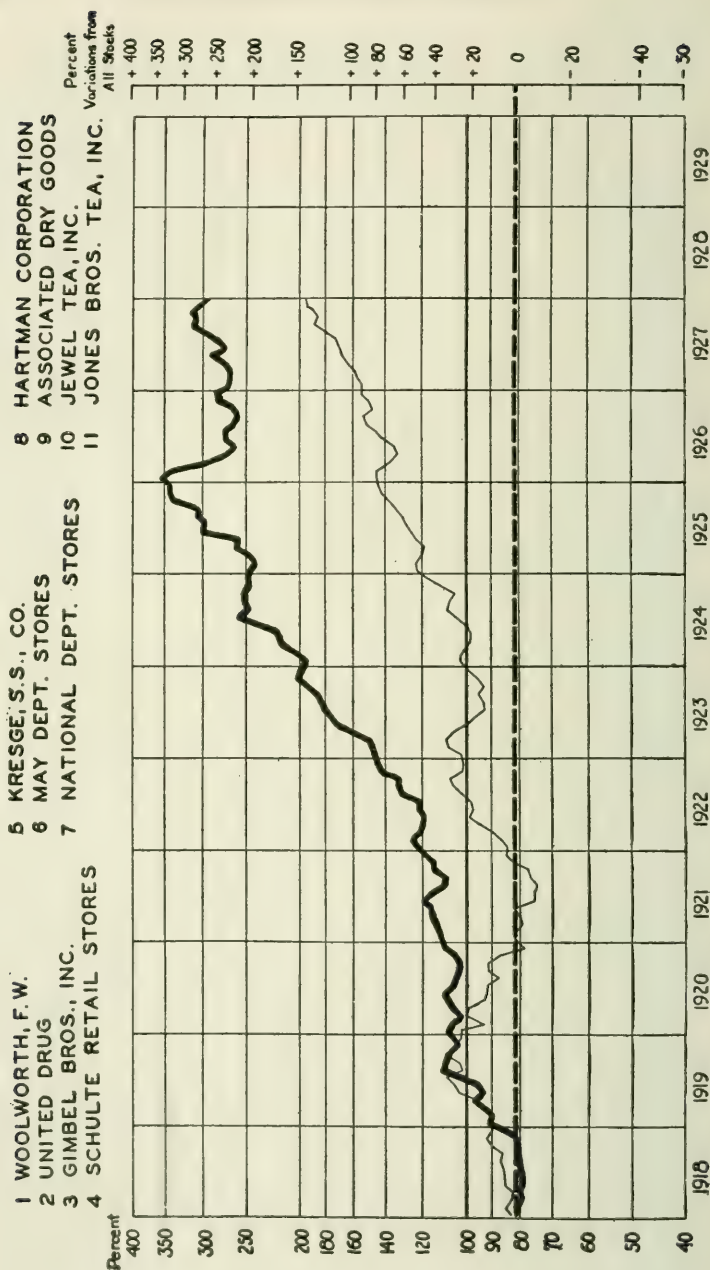


CHART XXXIV (2)

# AUTOMOBILES

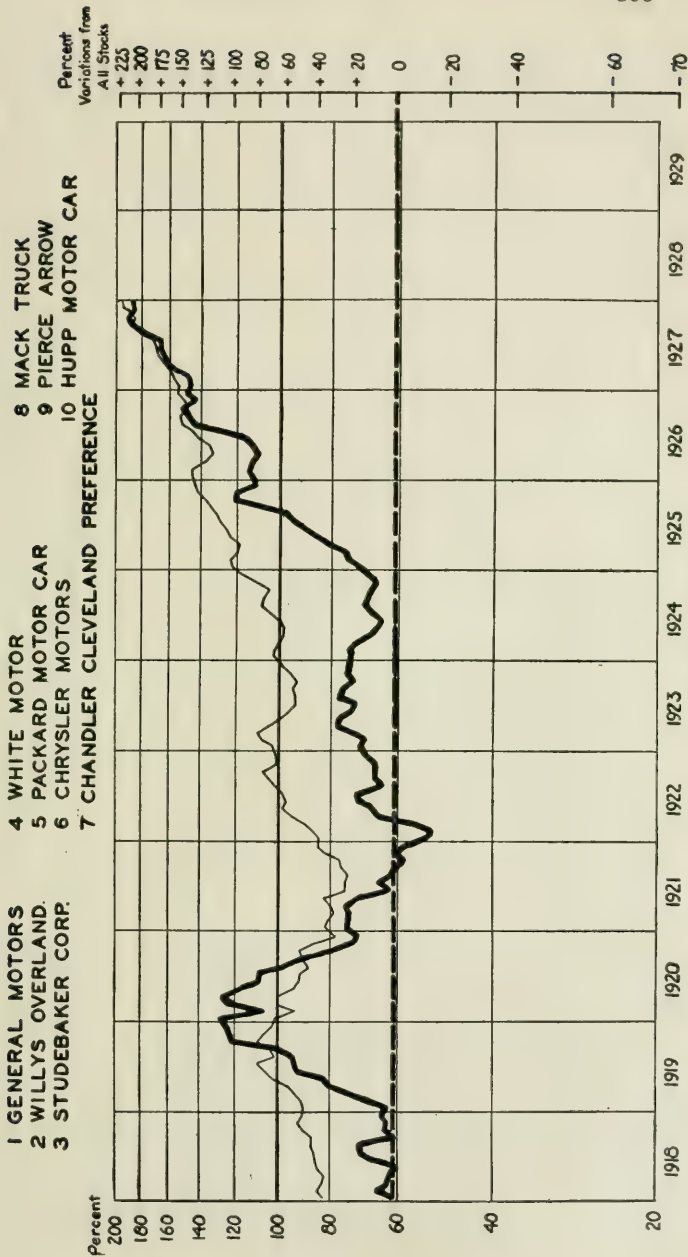


CHART XXXIV (3)



## FOOD

- 1 UNITED FRUIT  
 2 CORN PRODUCTS REFIN.  
 3 NATIONAL BISCUIT  
 4 CALIF. PACKING CORP.  
 5 WILSON & CO.  
 6 STANDARD MILLING  
 7 LOOSE-WILES BISCUIT  
 8 BOOTH FISHERIES  
 9 AUSTIN, NICHOLS & CO.

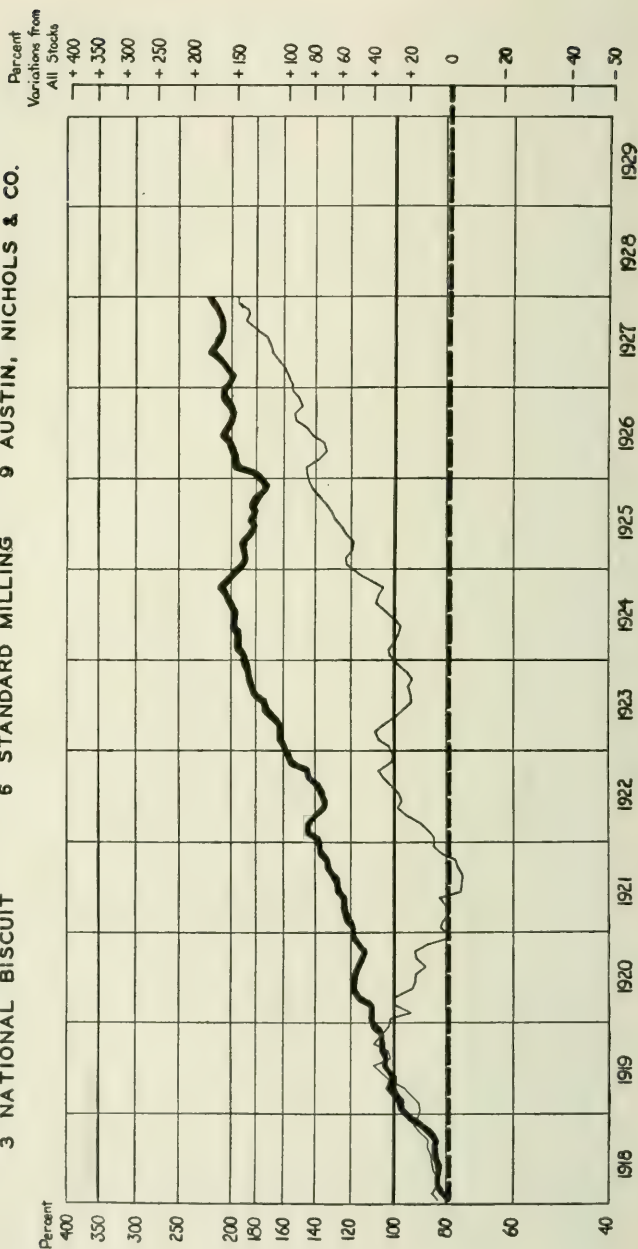


CHART XXXIV (4)

# ELECTRIC EQUIPMENT

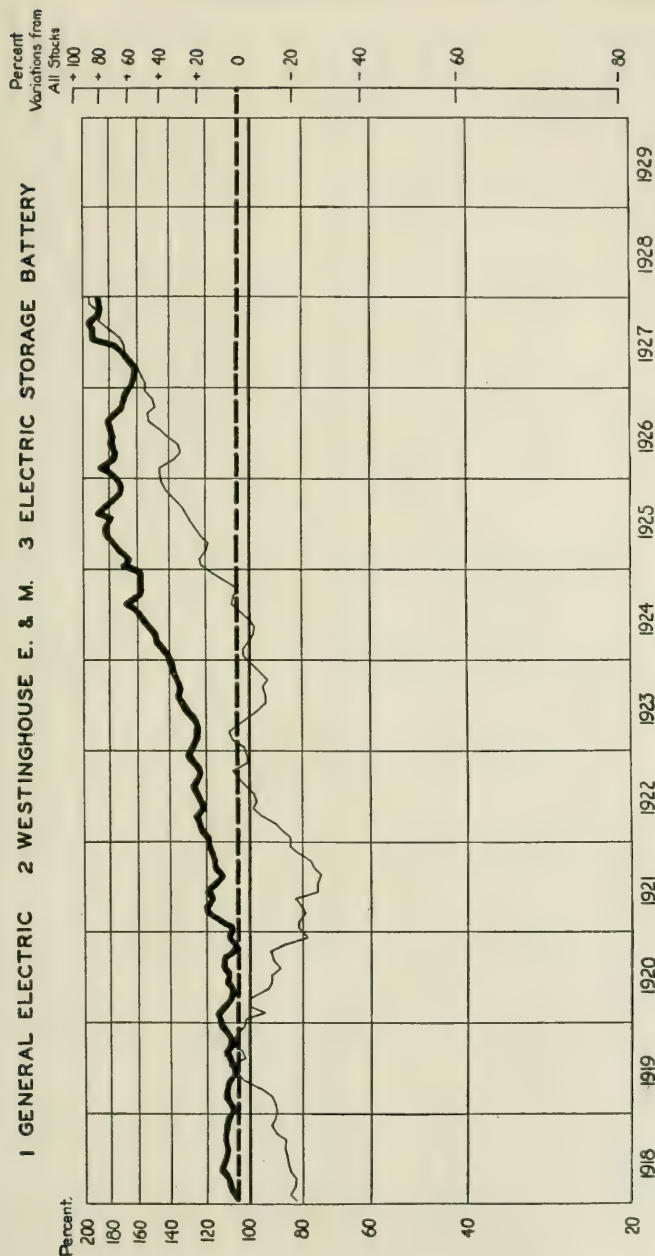
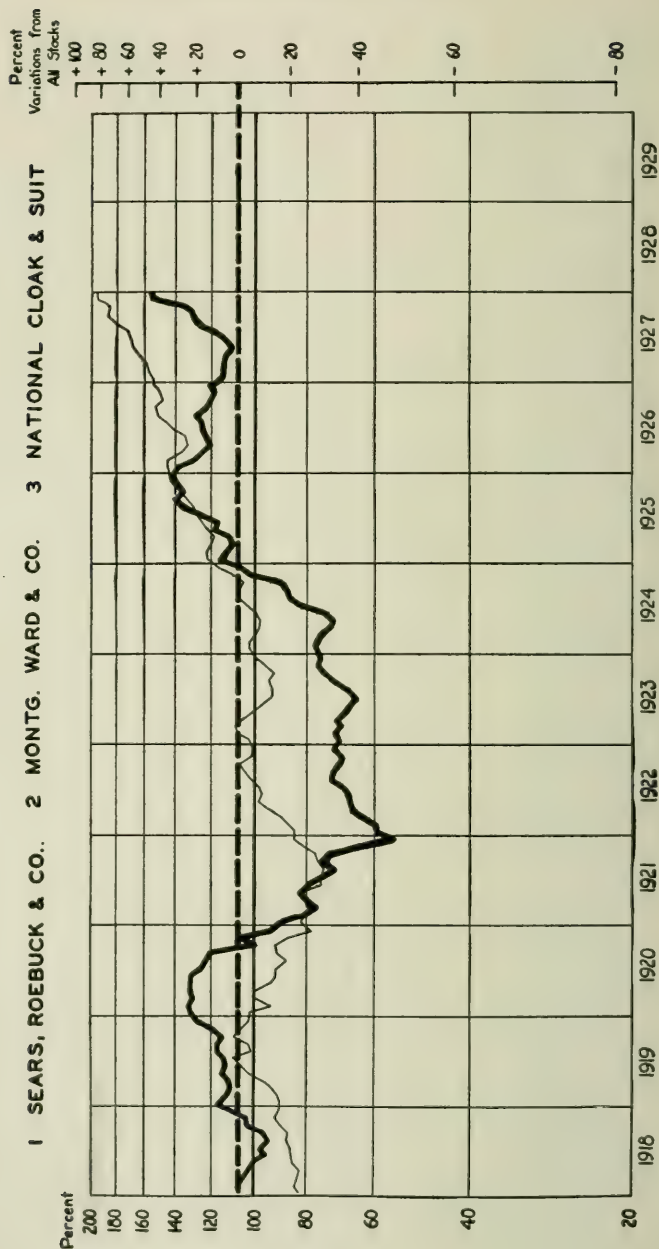


CHART XXXIV (5)

## MAIL ORDER HOUSES



# RAILROAD EQUIPMENTS

- 1 WESTINGHOUSE AIR BRAKE
- 2 AMER. CAR & FOUNDRY
- 3 AMER. LOCOMOTIVE
- 4 BALDWIN LOCOMOTIVE
- 5 AMER. STEEL FOUNDRIES
- 6 GEN. AMER. TANK CAR
- 7 N.Y. AIR BRAKE
- 8 PRESSED STEEL CAR
- 9 LIMA LOCO. WORKS
- 10 AM. BRAKE SHOE & FDY.

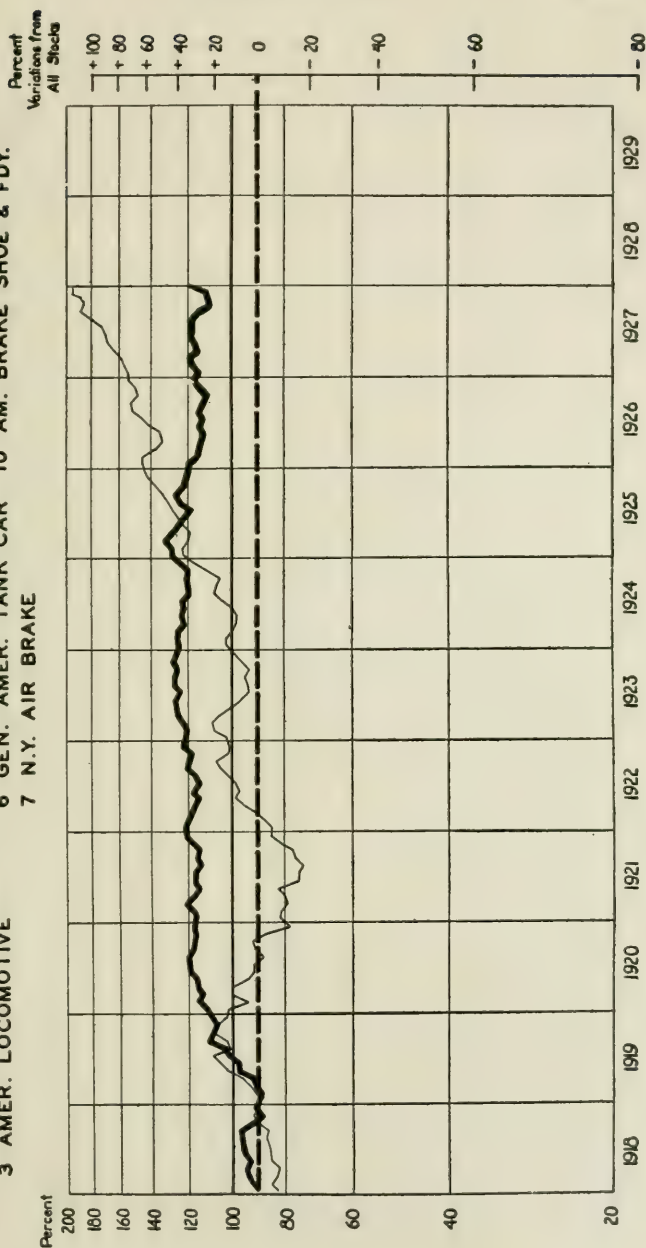
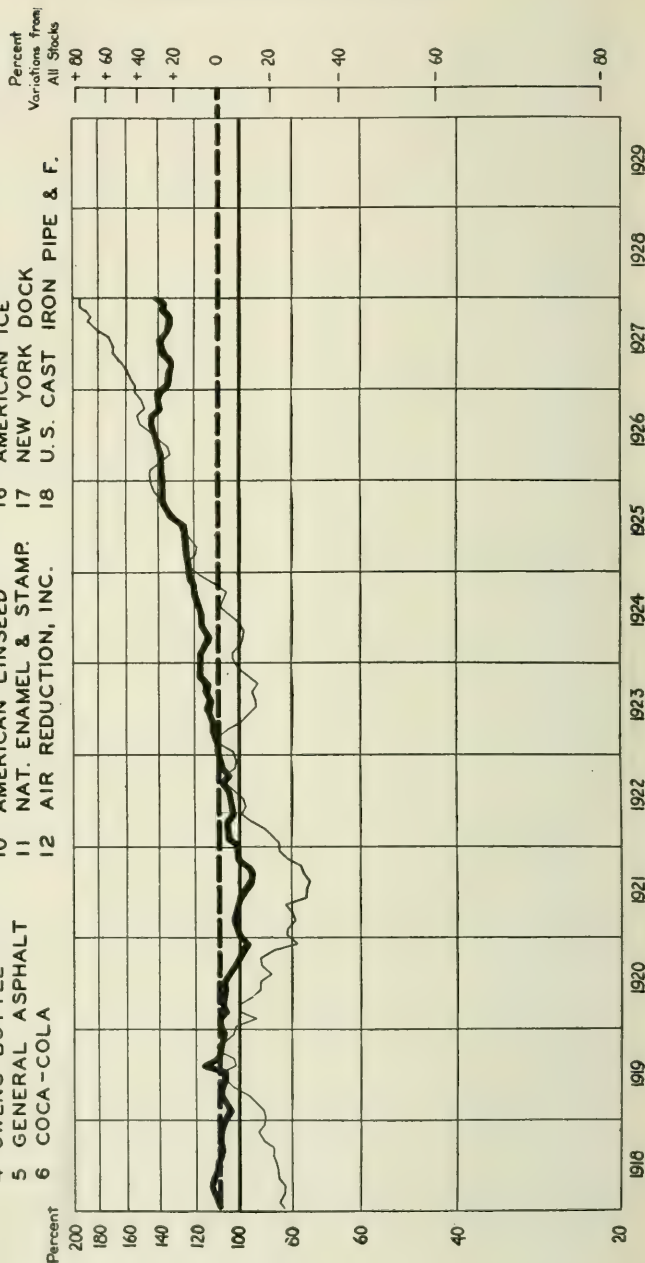


CHART XXXIV (7)

## MISC. INDUSTRIALS

- |                         |                        |                                   |
|-------------------------|------------------------|-----------------------------------|
| 1 PULLMAN COMPANY       | 7 AMERICAN CAN         | 13 INTERNAT. BUSINESS MACH. CORP. |
| 2 AMER. INTERNAT. CORP. | 8 UNDERWOOD TYPEWRITER | 14 REMINGTON TYPEWRITER           |
| 3 AMERICAN RADIATOR     | 9 CONTINENTAL CAN      | 15 VA. IRON, COAL & COKE          |
| 4 OWENS BOTTLE          | 10 AMERICAN LINSEED    | 16 AMERICAN ICE                   |
| 5 GENERAL ASPHALT       | 11 NAT. ENAMEL & STAMP | 17 NEW YORK DOCK                  |
| 6 COCA-COLA             | 12 AIR REDUCTION, INC. | 18 U.S. CAST IRON PIPE & F.       |





# TOBACCO

- 1 AMERICAN TOBACCO
- 2 LIGGETT & MYERS TOB.
- 3 LORILLARD, P.
- 4 TOBACCO PROD. CORP.
- 5 GENERAL CIGAR, INC.
- 6 AMERICAN SNUFF
- 7 AM. SUMATRA TOBACCO

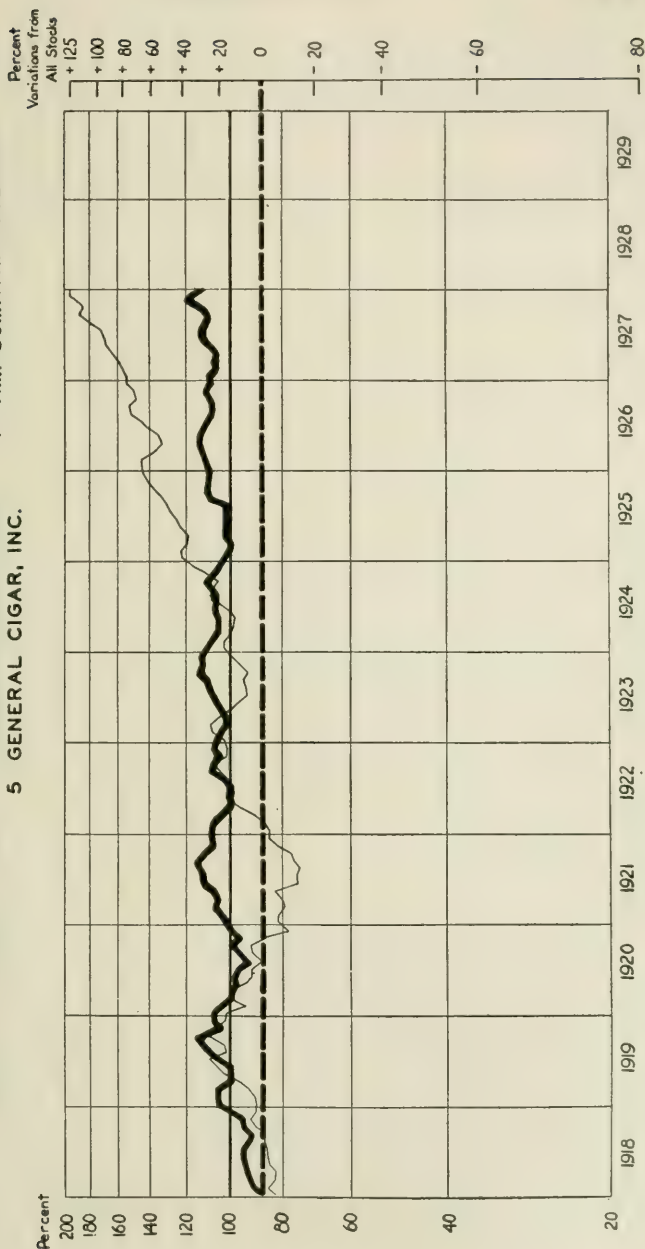


CHART XXXIV (9)

## FARM MACHINERY

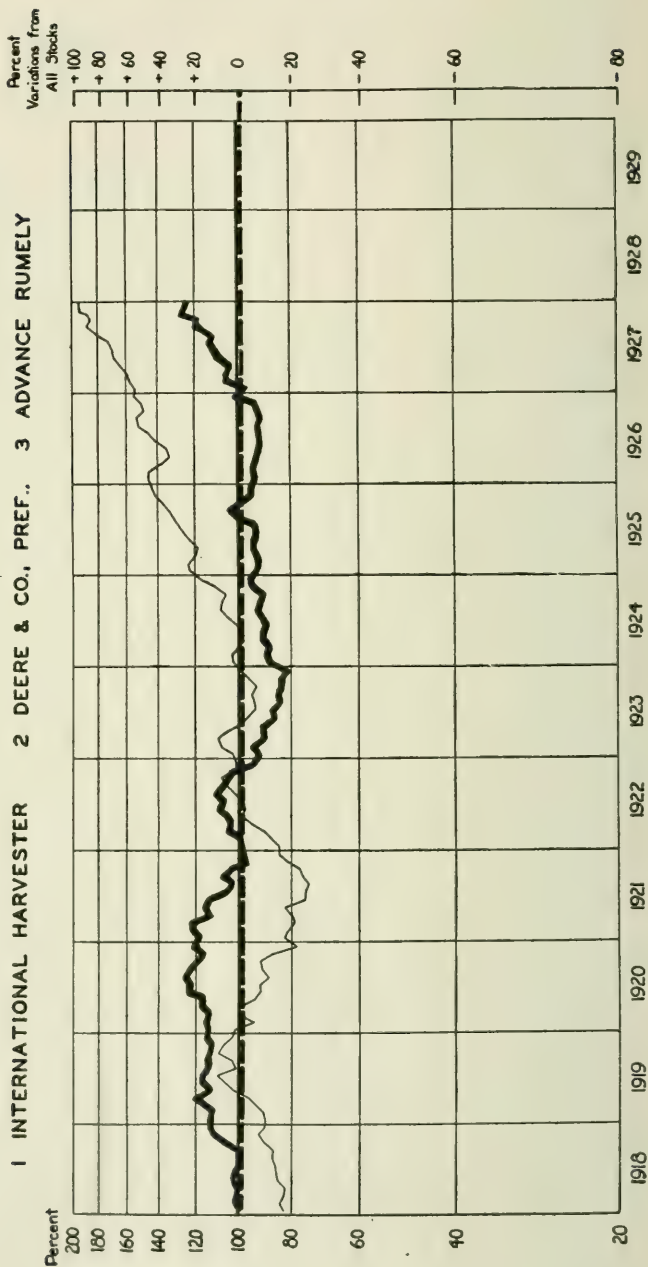


CHART XXXIV (10)

# GAS, TRACTION & POWER

- |                          |                             |                              |
|--------------------------|-----------------------------|------------------------------|
| 1 CONSOLIDATED GAS       | 6 MONTANA POWER             | 12 TWIN CITY RAPID TRAN.     |
| 2 MANHATTAN RAILWAY      | 7 PHILADELPHIA CO., PITTS.  | 13 LACLEDE GAS, ST. LOUIS    |
| 3 DETROIT EDISON         | 8 PUB. SERV. CORP. OF N. J. | 14 ELECTRIC PWR. & LT. CORP. |
| 4 BROOKLYN EDISON, INC.  | 9 PEOPLE'S GAS L. & COKE    | 15 THIRD AVENUE RY.          |
| 5 PACIFIC GAS & ELECTRIC | 10 NORTH AMERICAN           | 16 UNITED RYS. INVESTMENTS   |
|                          | 11 BROOKLYN UNION GAS       |                              |

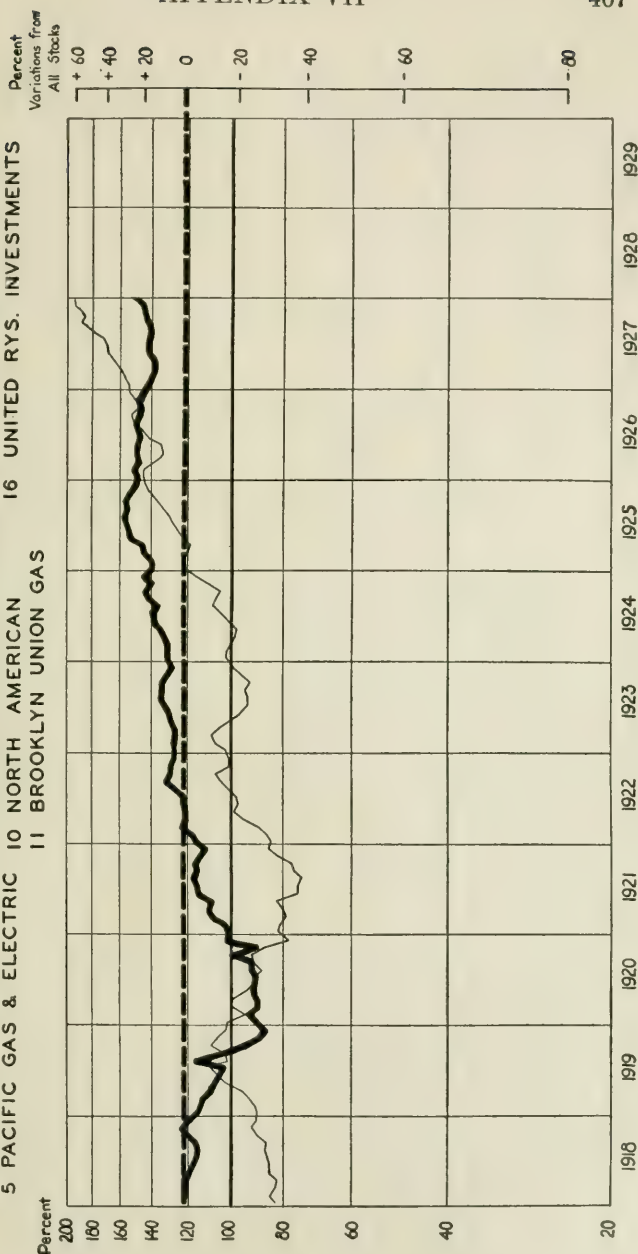


CHART XXXIV (11)

# CHEMICALS

- 1 ALLIED CHEMICAL & DYE    3 U.S. INDUS. ALCOHOL    6 MATHIESON ALKALI WKS.  
 2 AMERICAN AGRICUL. CHEM.    4 VA.-CAROLINA CHEMICAL    7 INT. AGRICUL. CORP.

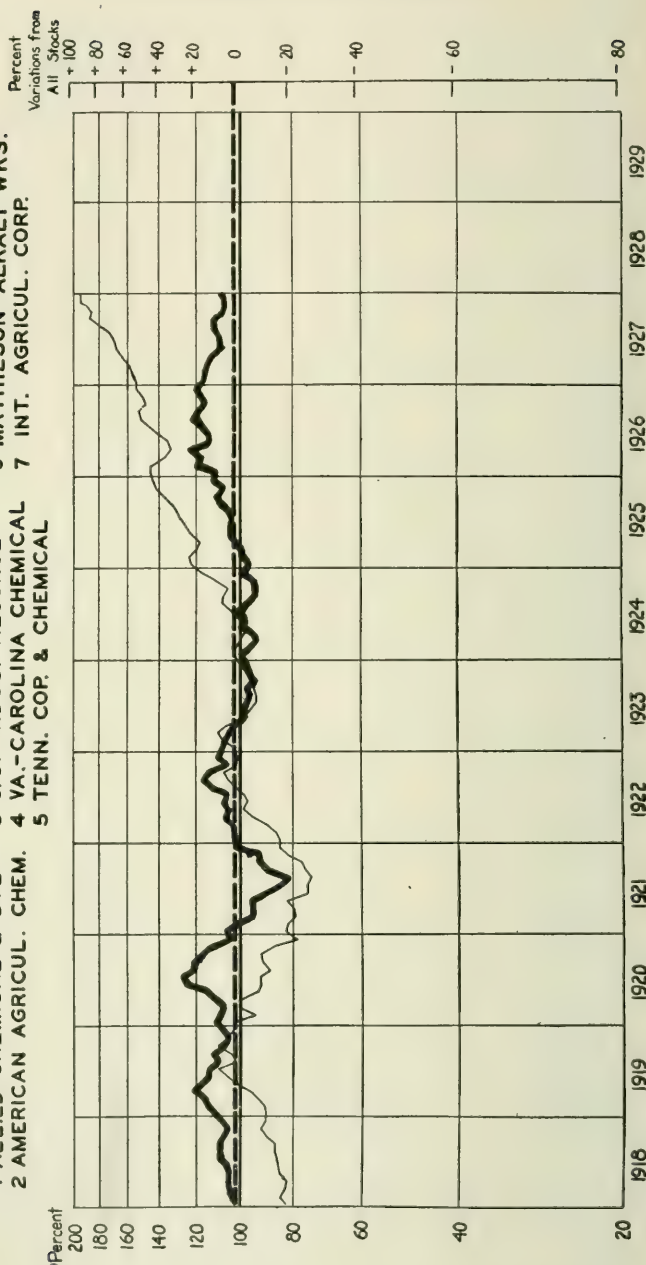


CHART XXXIV (12)

# RAILROADS

1 PENNSYLVANIA  
2 CANADIAN PACIFIC  
3 UNION PACIFIC  
4 SOUTHERN PACIFIC CO.  
5 DEL. LACK. & WESTERN  
6 GREAT NORTHERN, PFD.  
7 NEW YORK CENTRAL  
8 NORTHERN PACIFIC

9 ATCHISON, TOP. & S. FE.  
10 NORFOLK & WESTERN  
11 READING COMPANY  
12 ILLINOIS CENTRAL  
13 BALTIMORE & OHIO  
14 LOUISVILLE & NASHVILLE  
15 CHIC. MILW. & ST. PAUL  
16 LEHIGH VALLEY

17 ATLAN. COAST LINE R.R.  
18 NY, N.H. & HARTFORD  
19 DELAWARE & HUDSON  
20 CHIC. ROCK ISLAND & PAC.  
21 CHESAPEAKE & OHIO  
22 ERIE  
23 SOUTHERN RAILWAY  
24 NY, CHIC. & ST. LOUIS

25 MISSOURI PACIFIC  
26 MO, KAN. & TEXAS CO.  
27 ST. LOUIS & SAN. FRAN.  
28 PERE MARQUETTE  
29 KANSAS CITY SOUTHERN  
30 N. ORL., TEXAS & MEX.  
31 ST. LOUIS SOUTHWEST

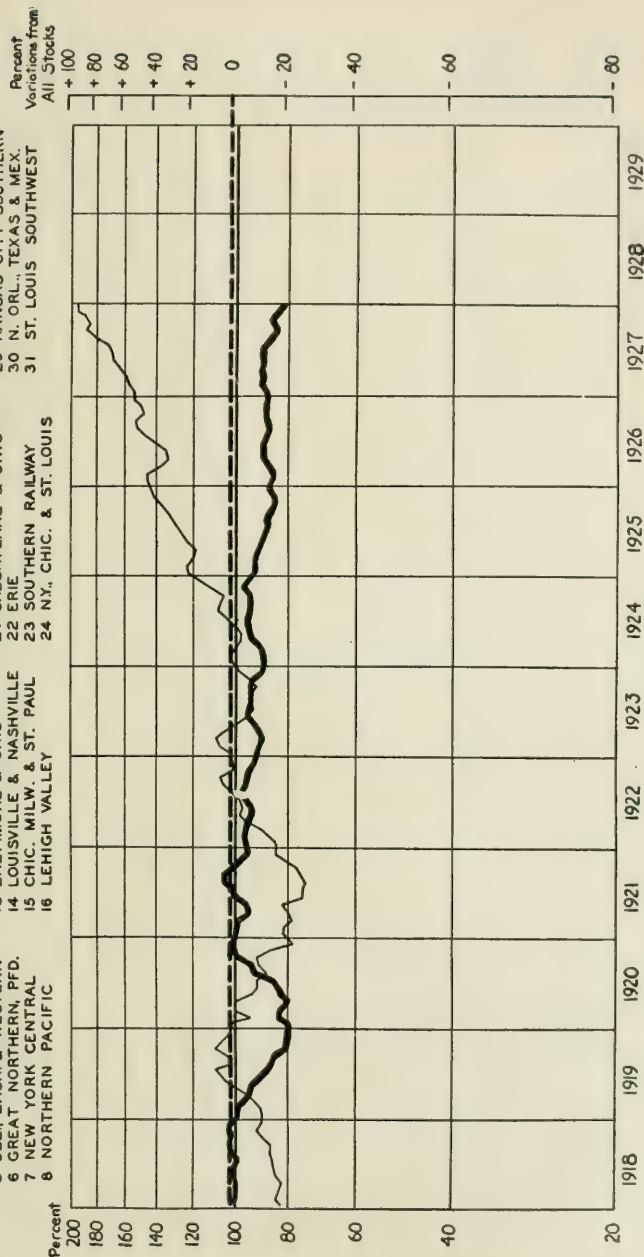


CHART XXXIV (13)



## PAPER

1 INTERNATIONAL PAPER 2 UNION BAG &amp; PAPER 3 AMER. WRITING PAPER, PREF.

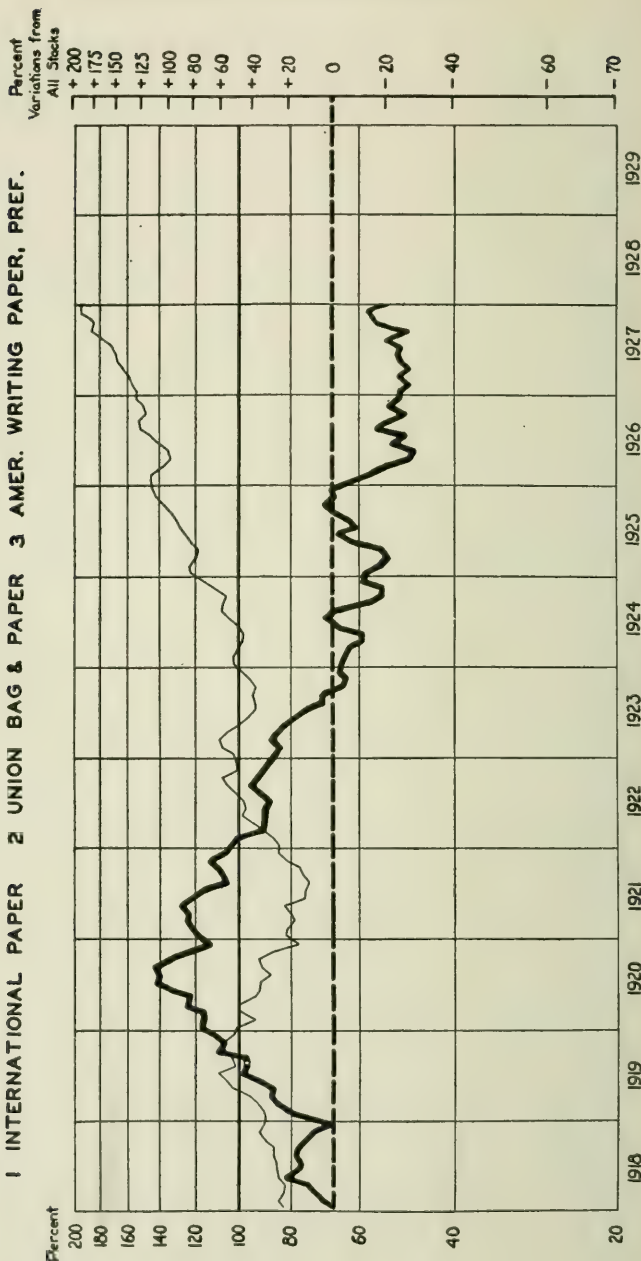


CHART XXXIV (14)

# METAL, MISC.

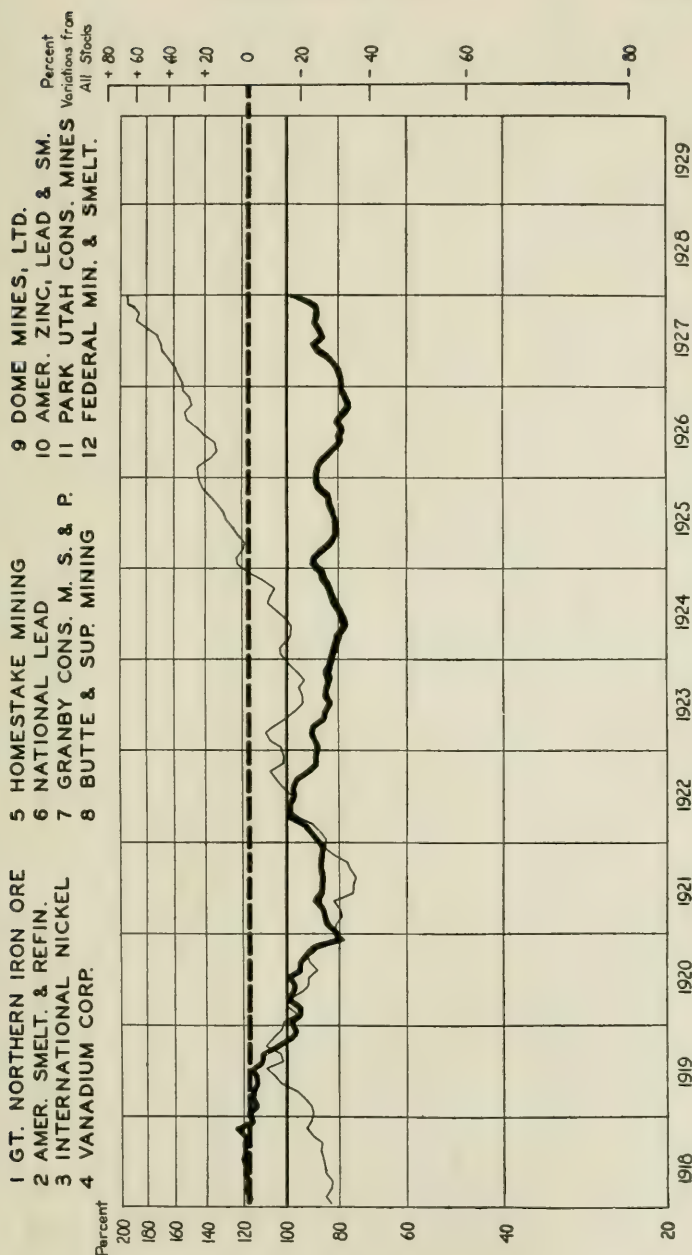


CHART XXXIV (15)

## TELEGRAPH AND CABLE

1 AMERICAN TEL. & TEL.  
2 WESTERN UNION TELEG.  
3 MACKAY COMPANIES  
4 ALL AMERICA CABLES  
5 AM. TELEG. & CABLE

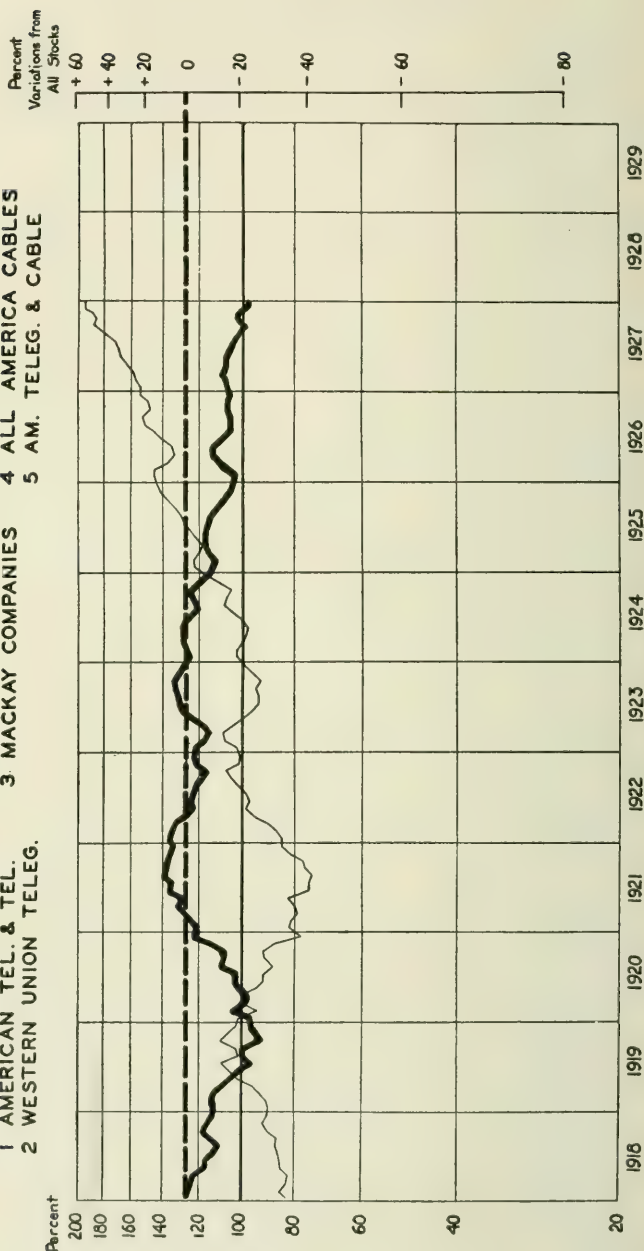


CHART XXXIV (16)

# THEATRE

1 LOEW'S INCORPORATED      2 FAMOUS PLAYERS-LASKY      3 ORPHEUM CIRCUIT, INC.

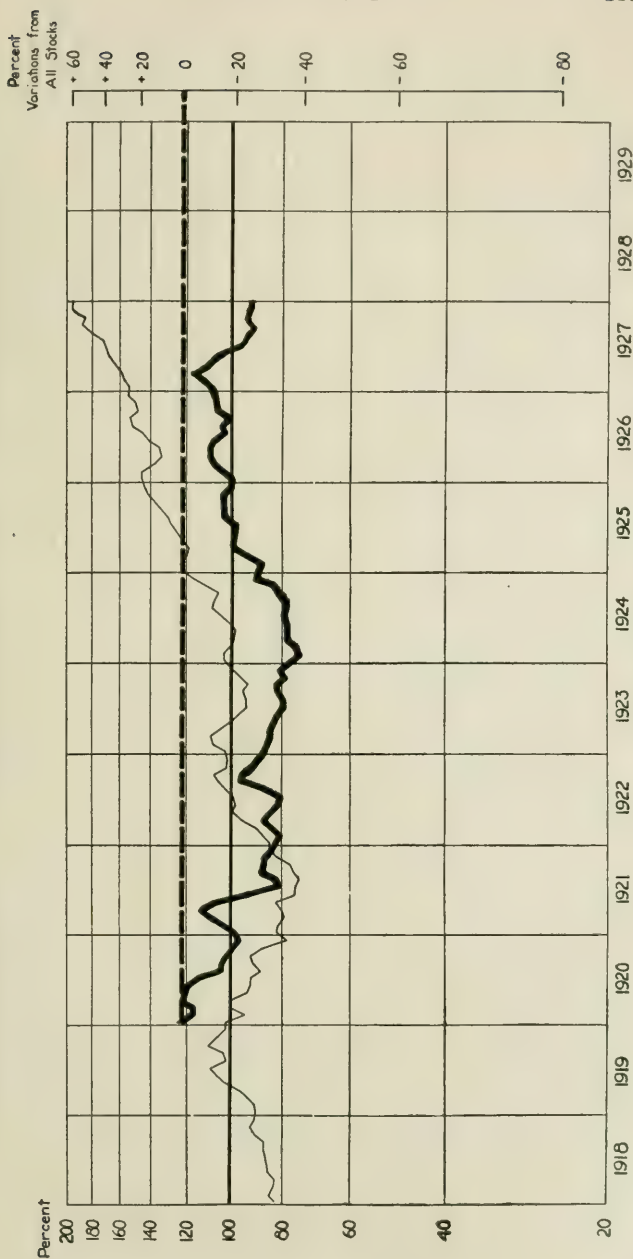


CHART XXXIV (17)

## MACHINE MANUFACTURING

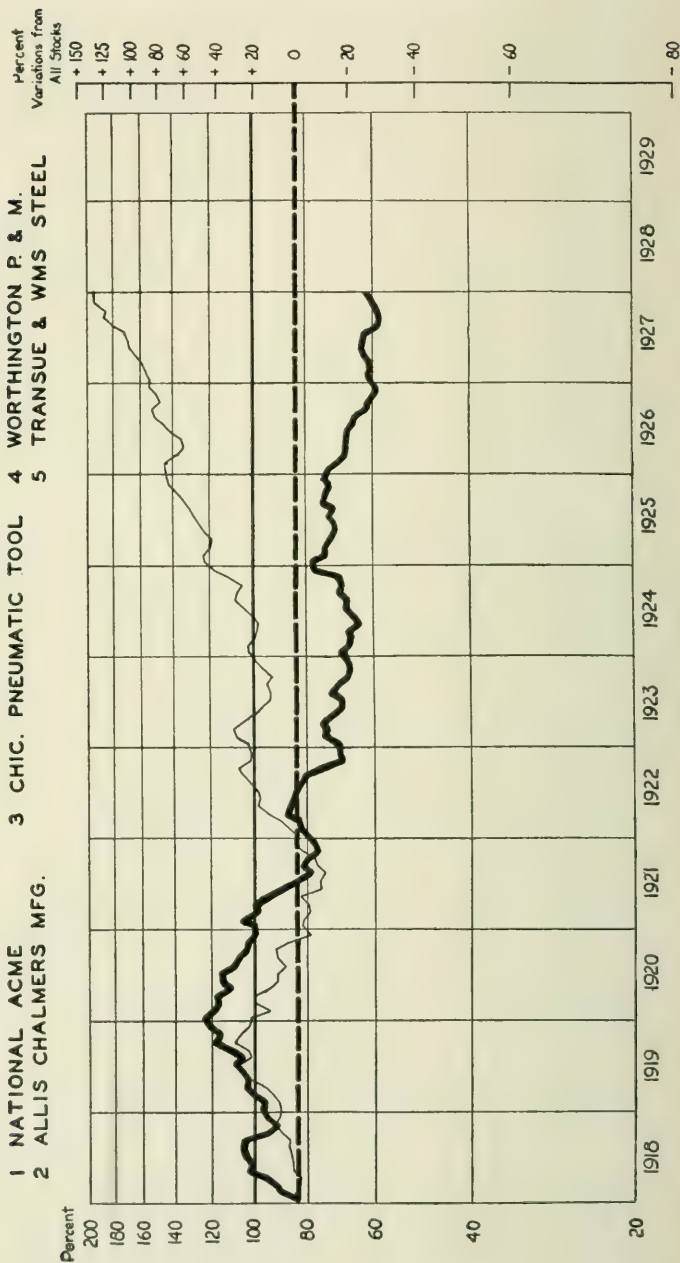


CHART XXXIV (18)



# STEEL

- 1 UNITED STATES STEEL
- 2 BETHLEHEM STEEL CORP.
- 3 CRUCIBLE STEEL OF AMER.
- 4 UNITED ALLOY STEEL
- 5 REPUBLIC IRON & STEEL
- 6 COLORADO FUEL & IRON
- 7 GULF STATES STEEL
- 8 SLOSS-SHEFFIELD STEEL & I.
- 9 SUPERIOR STEEL

Percent  
Variations from  
All Stocks

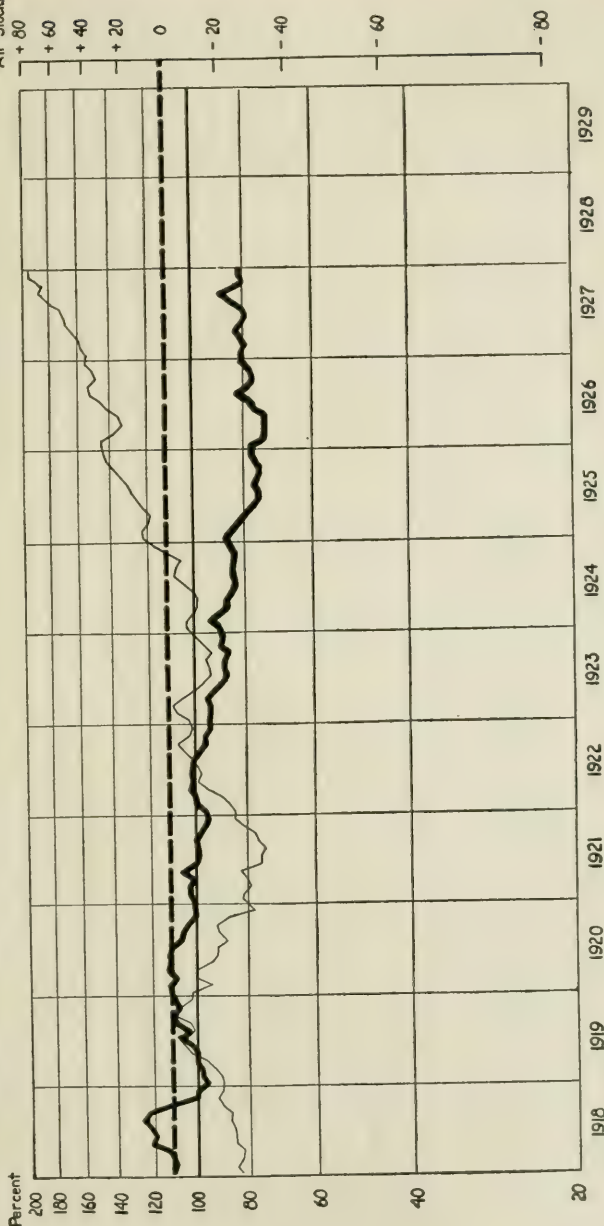


CHART XXXIV (19)

## COPPER

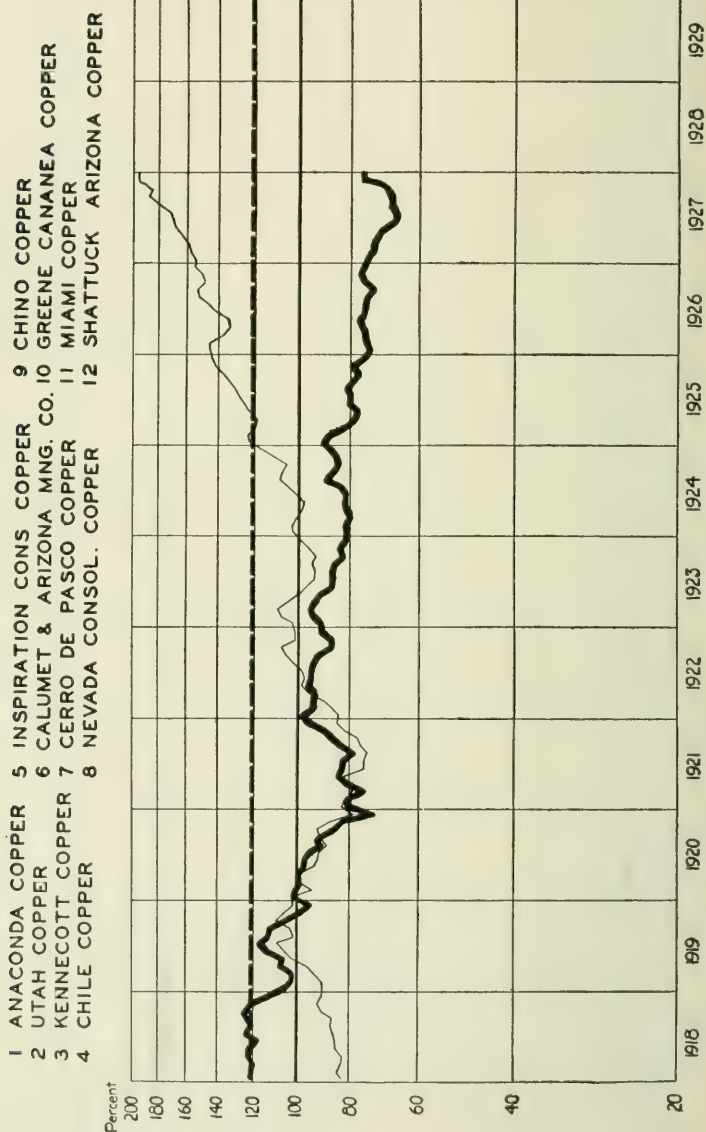


CHART XXXIV (20)

PETROLEUMS

- 1 STANDARD OIL OF N. J.

2 STANDARD OIL OF CAL

3 TEXAS COMPANY, THE

4 SINCLAIR CONS. OIL CORP

5 PAN-AMER. PET. & T

6 PURE OIL
- 7 TIDEWATER OIL

8 MIDDLE STATES OIL

9 ATLANTIC REFINING

10 TRANSCON OIL

11 MID-CONTINENT
- 12 ASSOCIATED OIL

13 HOUSTON OIL OF TEXAS

14 PHILLIPS PETROLEUM

15 PIERCE OIL CORP

16 CALIF PETROLEUM

17 BARNSDALL CORP, CLASS A

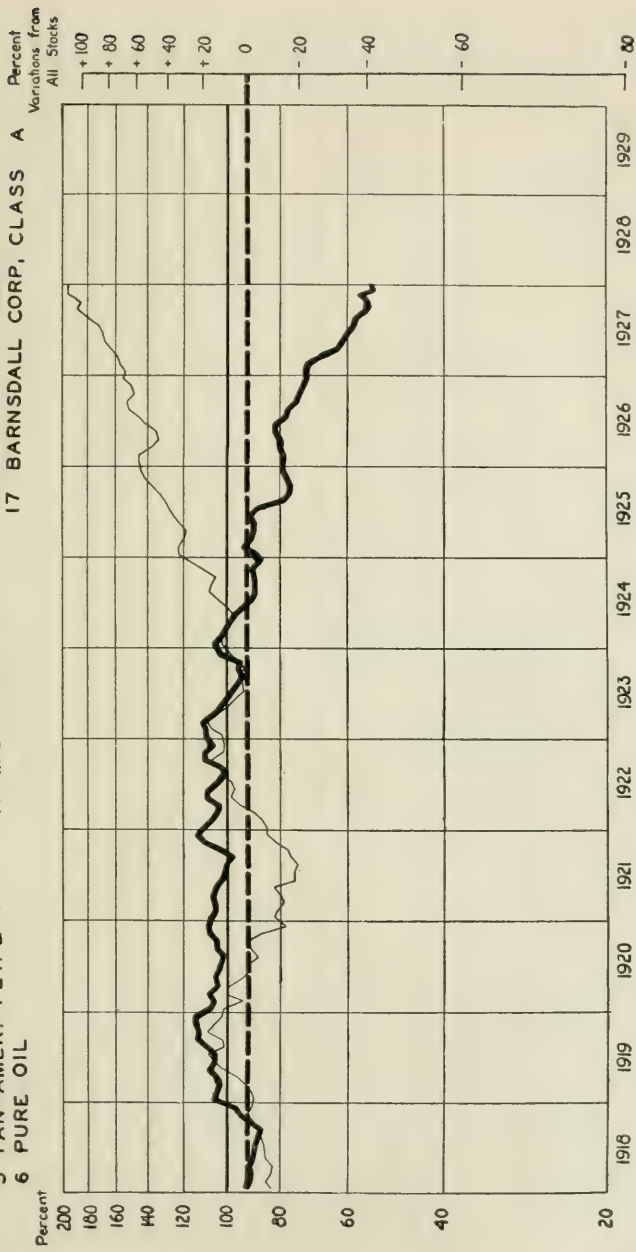


CHART XXXIV (21)

## TIRE AND RUBBER

- 1 U.S. RUBBER  
 2 GOODRICH, B. F.  
 3 AJAX RUBBER, INC.  
 4 KELLY-SPRINGFIELD TIRE  
 5 FISK RUBBER  
 6 KEYSTONE TIRE & RUB.  
 7 LEE RUBBER & TIRE

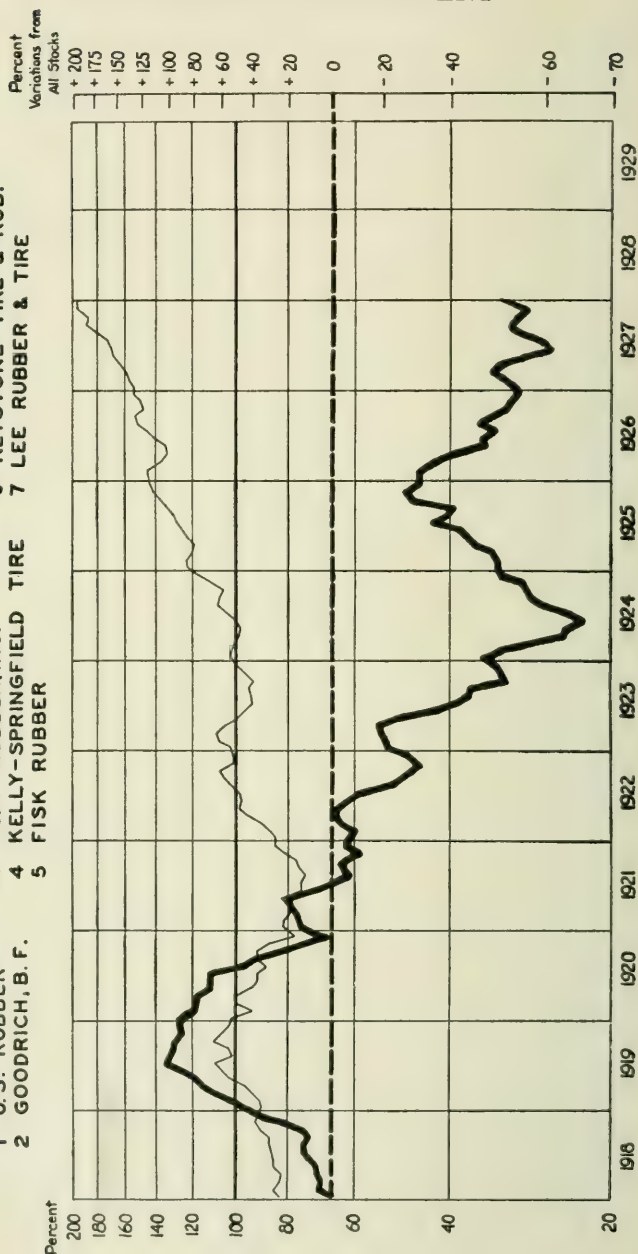
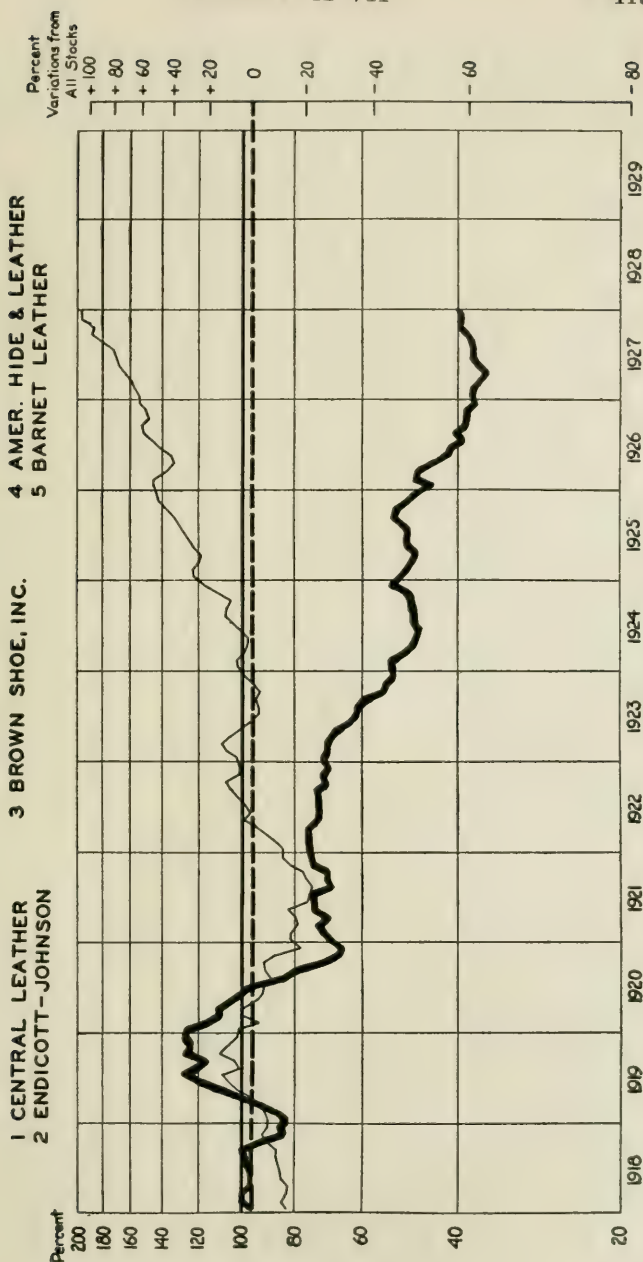


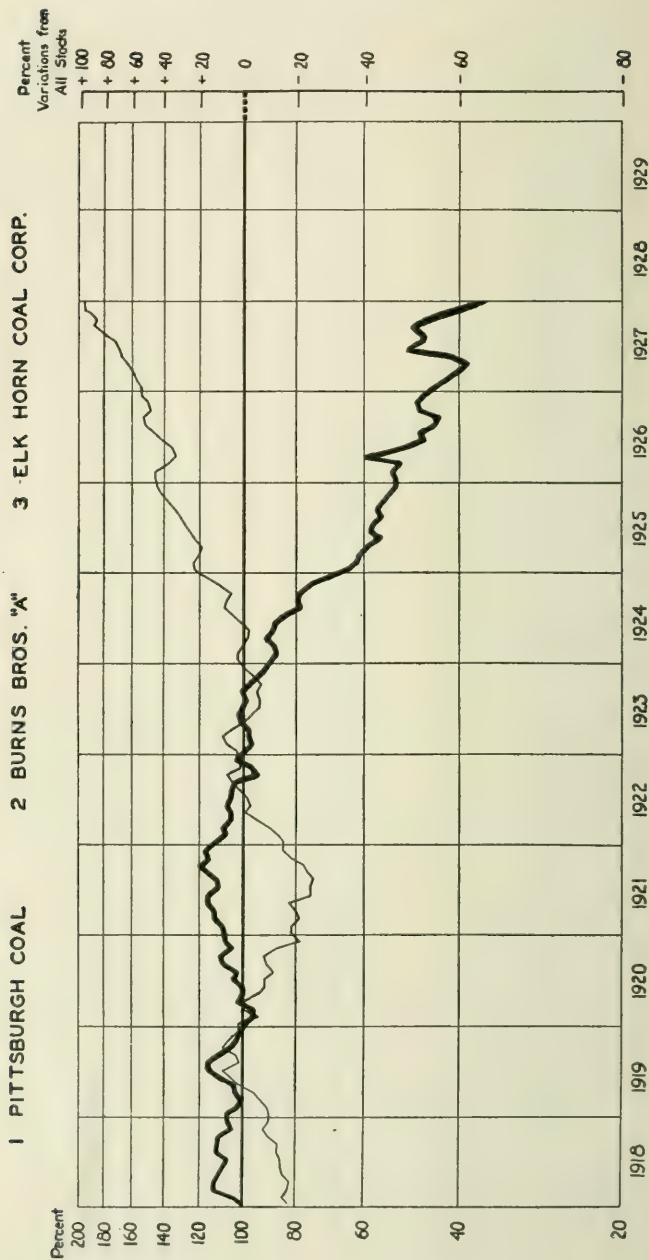
CHART XXXIV (22)

# LEATHER AND SHOE





## COAL



# TEXTILES

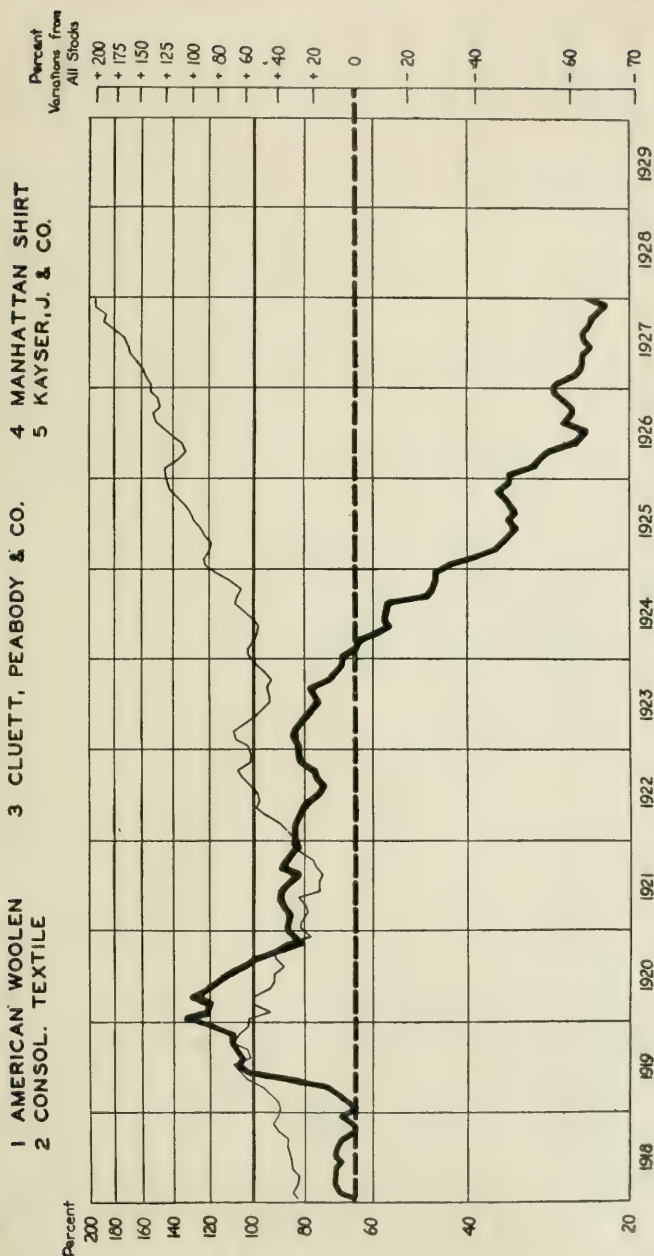


CHART XXXIV (25)

## SUGAR

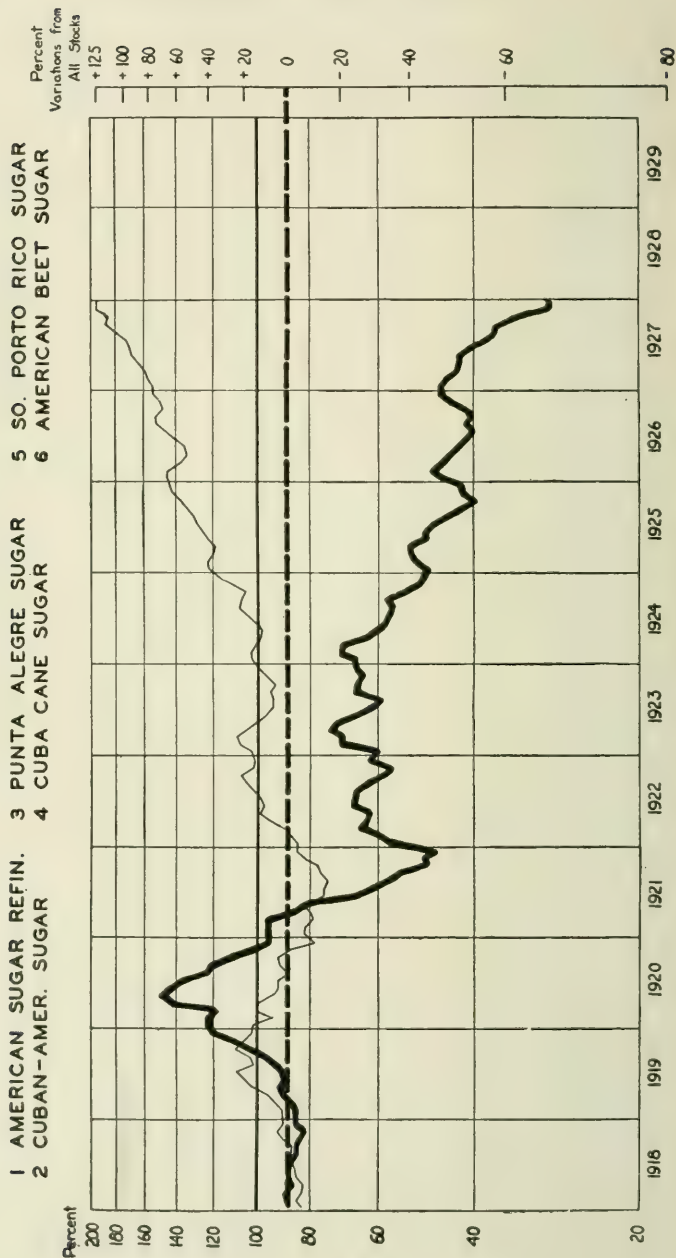


CHART XXXIV (26)

# SHIPPING

1 INTERNAT. MERC. MARINE 2 ATL., GULF & W.I. S.S. LINES 3 AMERICAN SHIP & COMMERCE

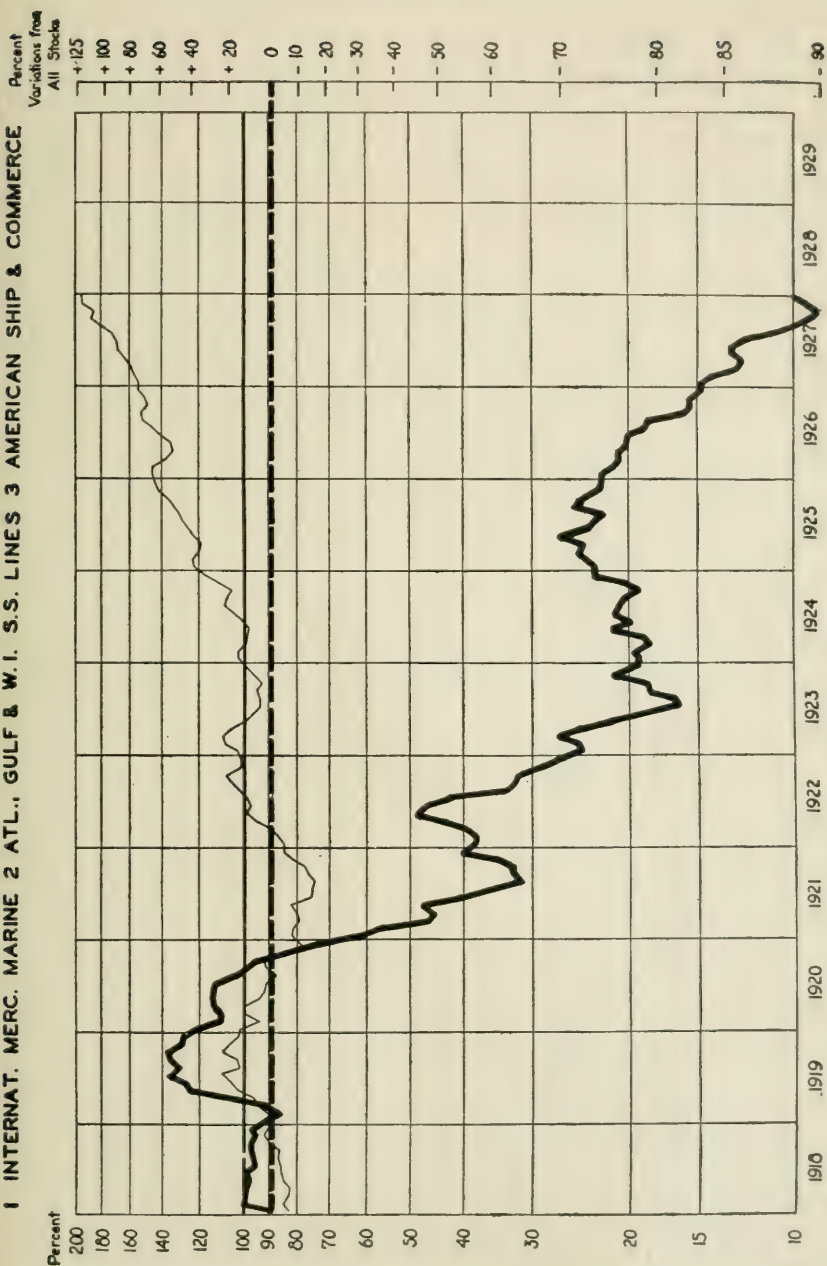


CHART XXXIV (27)





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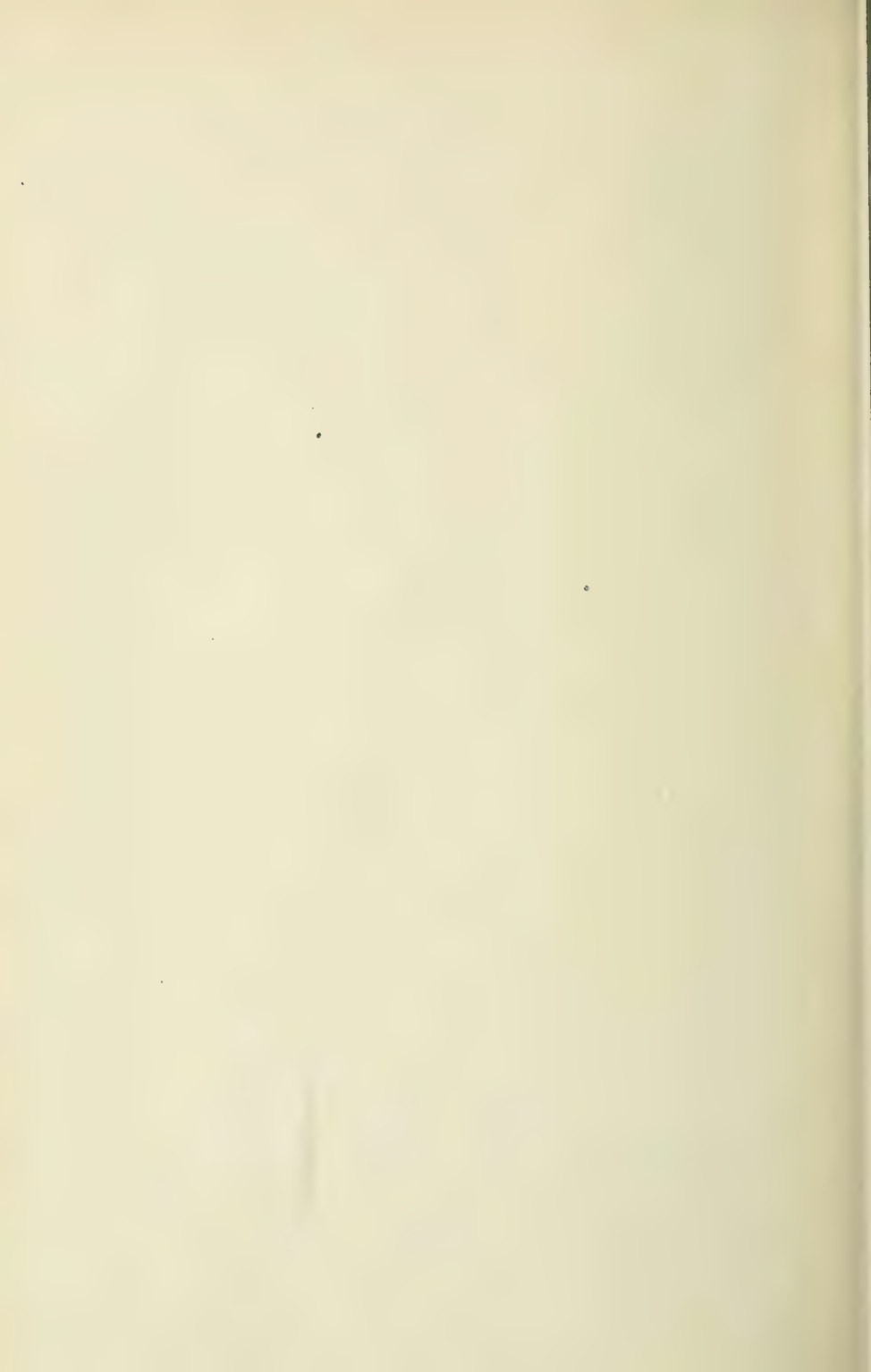
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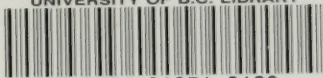
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